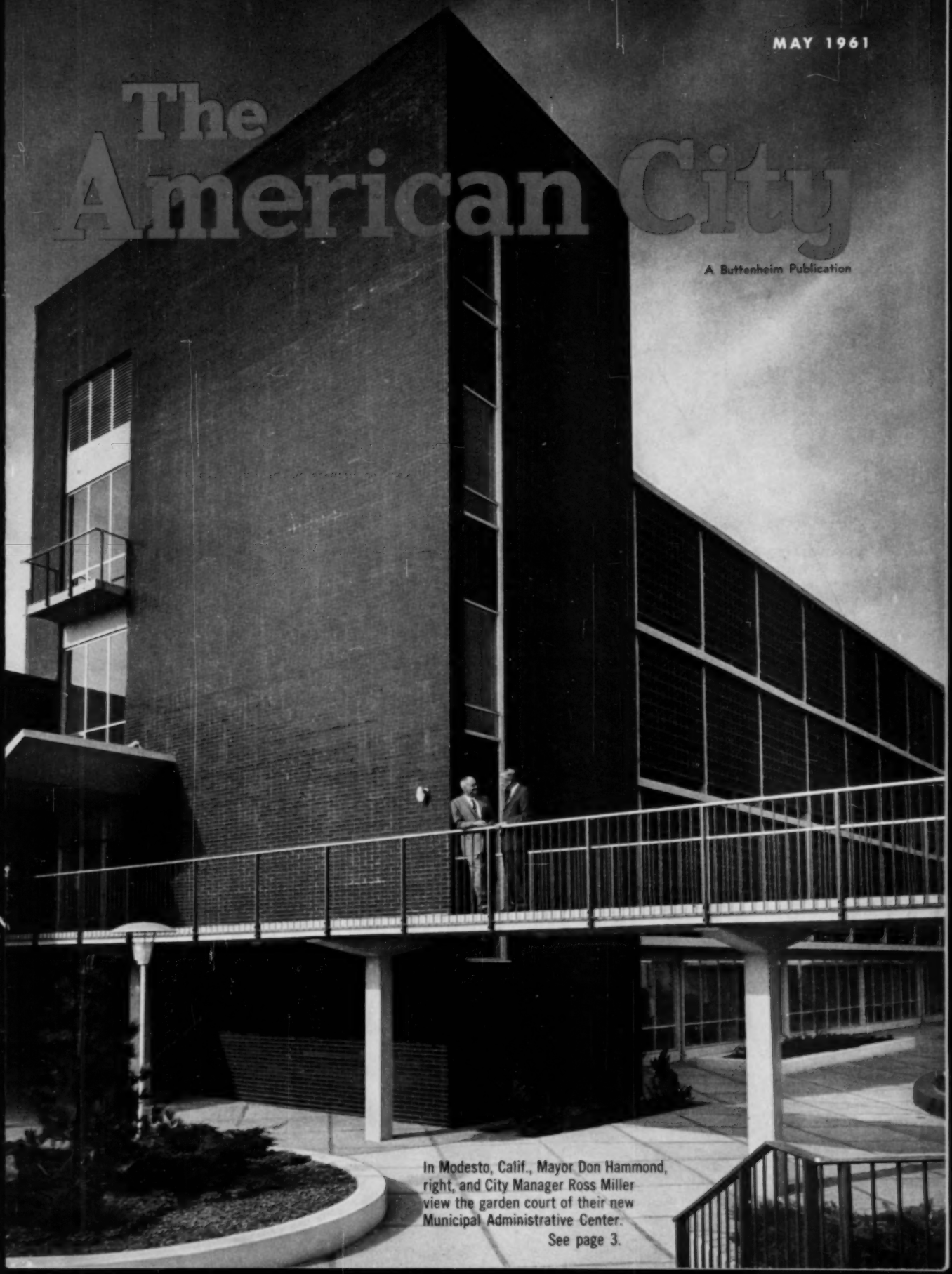
MAY 1961

The American City

A Buttenheim Publication

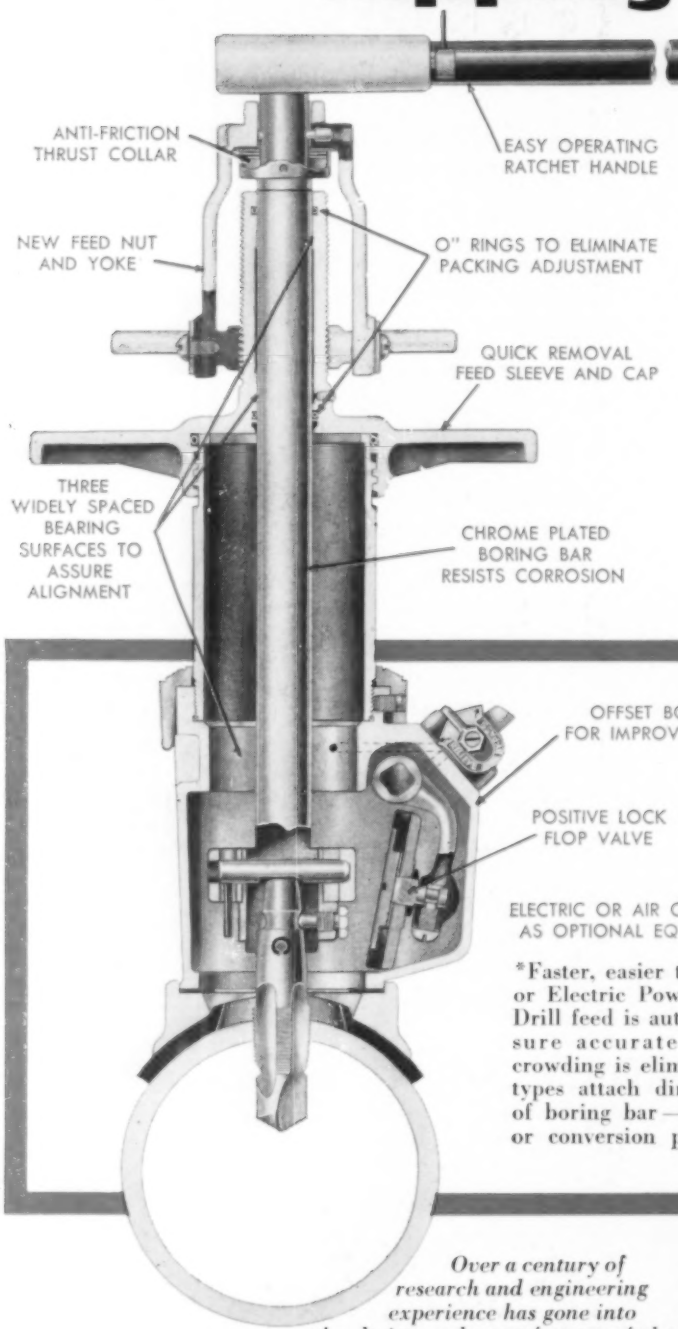


In Modesto, Calif., Mayor Don Hammond, right, and City Manager Ross Miller view the garden court of their new Municipal Administrative Center.

See page 3.

operators like the ease . . .
the speed . . . the accuracy of the new

MUELLER® B-100 tapping machine!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EASY OPERATING RATCHET HANDLE
NEW FEED NUT AND YOKE
"O" RINGS TO ELIMINATE PACKING ADJUSTMENT
QUICK REMOVAL FEED SLEEVE AND CAP
THREE WIDELY SPACED BEARING SURFACES TO ASSURE ALIGNMENT
CHROME PLATED BORING BAR RESISTS CORROSION
OFFSET BODY DESIGN FOR IMPROVED OPERATION
POSITIVE LOCK FLOP VALVE

Every feature of the new B-100 was designed with the operator in mind. These features give you faster taps, pressure-tight connections and easy, trouble-free operation.

ELECTRIC OR AIR OPERATORS AS OPTIONAL EQUIPMENT*

*Faster, easier taps with Air or Electric Power Operator! Drill feed is automatic to insure accurate cuts. Tool crowding is eliminated. Both types attach directly to top of boring bar — no adapters or conversion parts needed.

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The American City
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MAY 1961

MAGAZINE OF MUNICIPAL MANAGEMENT AND ENGINEERING

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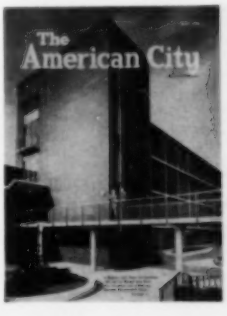
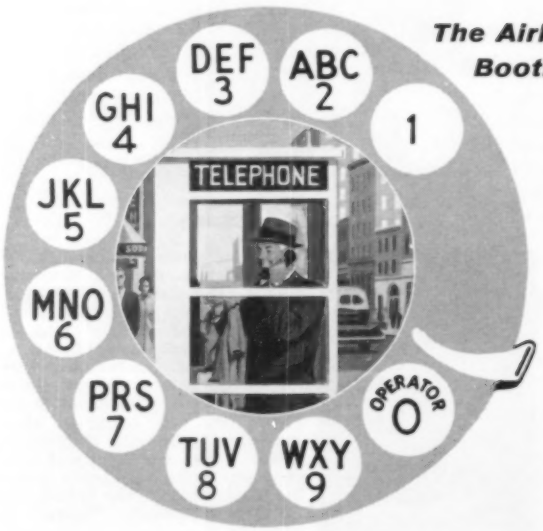


Modesto's new municipal building reflects a growing tendency among progressive local governments to make what used to be called the "City Hall" into an attractive, charming and functional civic center. The building, with its garden court and attractive landscaping, sets an example for others who will construct office structures in the city. If followed, it will bring new light and spaciousness to the vigorously growing urban areas of the nation. See "Utility, Simplicity, Charm" on page 107.

The Drive-Up Phone

The Walk-Up Phone



The Airlight Booth

THE BUSIEST WHEELS IN YOUR CITY

Every day, hundreds of your citizens must make phone calls when they are away from their office or home. Often, their search for a building with a phone booth takes them many blocks and many minutes.

To solve this problem, progressive cities all over our nation have had planned networks of new outdoor telephones installed on their public property.

These outdoor telephones not only give 24-hour service and protection, they also add extra revenue to your city's treasury—without adding one cent to your municipal tax burden.

Learn how outdoor telephones can serve your city profitably. Call your local Bell Telephone manager. He'll be pleased to arrange for a prompt, custom-designed telephone plan for your city.

BELL TELEPHONE SYSTEM

Volume 76 Number 5

The American City

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ASSOCIATED PUBLICATIONS

CONTRACTORS and ENGINEERS	OVERVIEW	
Municipal Index	MART	AMERICAN SCHOOL AND UNIVERSITY

LETTERS TO THE EDITOR

Leased Police Cars

To bring you up to date on our leased police cars (THE AMERICAN CITY, April 1961, p. 35), the Ryder Company and the city have worked out an agreement on replacing the three Ford Fairlane eight-cylinder Police Specials which have already run up over 72,000 miles per car with three months yet to go. The replacement agreement is for six months, providing new eight-cylinder Ford Galaxies at the same rental price of $255.10 per month each and removing the cancellation resale clause.

CAREY C. BURNETT
City Manager
Albany, Ga.

I read with interest the cost analysis in reference to leased police cars in Albany, Georgia (April 1961, p. 35).

As a department head in a city which has delved very deeply in to analysis of equipment operations, I was a bit surprised by the cost figures presented in this article.

The cost computed for police cars is quoted at 4.2 cents per mile, consisting of $2,986.29 rental per year per vehicle divided by 72,000 miles. Exactly what the lessor furnishes for this rental rate is not disclosed. If they furnish all repairs, gasoline, oil, tires, tubes, replacement parts and insurance, then Albany has a terrific bargain. If they furnish all repairs and replacement parts over the 72,000 miles, Albany still has a good deal. If they furnish only the vehicle, the program appears expensive.

W. T. MAYFIELD
Director of Finance
Richmond, Calif.

Not the First

I enjoy reading your excellent publication very much. However, even the best of publications apparently are subject to error. ("Miami Gets Surplus Plane For Kiddie Park," March 1961, p. 27.)

Your article quotes the mayor of Miami as stating that it "was the first plane to be delivered to any city in the United States under the new program." I note further that the Navy was involved in the project.

At the risk of adding to the interservice rivalry between the Navy and the Air Force, the Air Force has furnished Dayton not one, not two, but *three* surplus airplanes which are located at park and school sites in the city. These planes have been in our parks for two years.

Unfortunately, even we here in Dayton, who traditionally pioneer in the field of municipal administration, cannot claim to be the first to have availed ourselves of this unique, educational and recreational play piece because our neighbor, Springfield, Ohio, had a plane in one of its parks even before we did.

In addition to the retired airplanes, which, by the way, are jets, we have two retired fire-fighting vehicles, and we have been endeavoring to obtain a retired steam engine.

I think Miami is to be congratulated for recognizing a good idea and for getting on the band wagon, but not for being original in this instance.

ALFRED P. STROZDAS
Director of Welfare
Dayton, Ohio

Next Year's Snow

I have just read your March editorial "Next Year's Snow Removal Program," and I think it is a dandy.

From time to time, we are contacted either in person or through the mail, by various persons or communities seeking answers to miscellaneous snow problems.

Wisconsin's Senator Alexander Wiley recently asked several questions concerning winter traffic tie-ups and I would like to send him and a few others a reprint of page 7 of your March issue. I would also like to give a copy to our reference library, as well as to the local newspapers.

I hope to get it on this year's agenda of the State Chapter of the A.P.W.A. I sincerely hope the national A.P.W.A. organization will get a qualified speaker on this subject for the Minneapolis Convention in September.

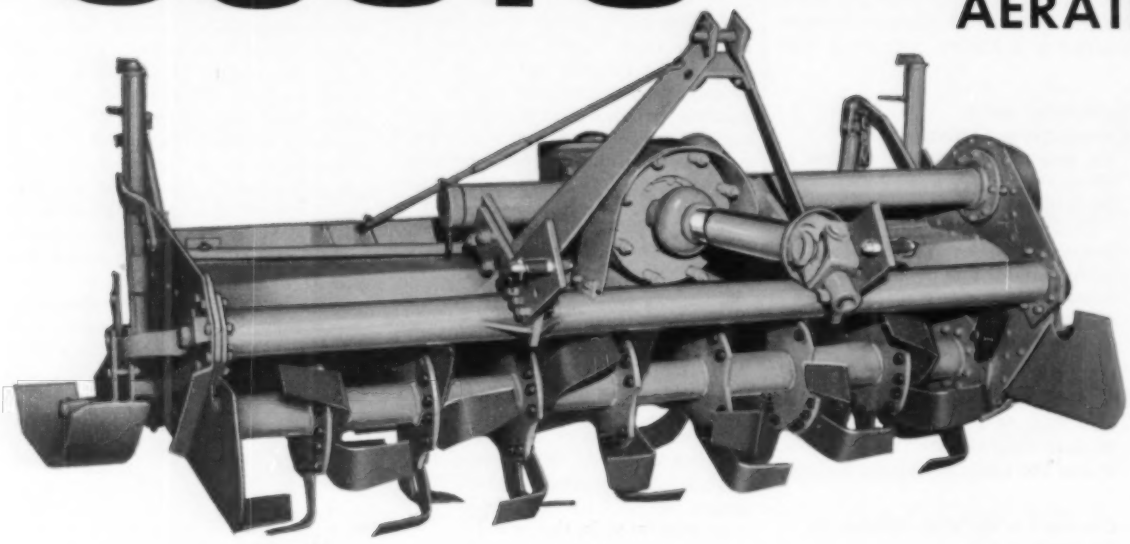
In view of the foregoing, I am wondering if it would be possible to get reprints of Page 7. I believe the article is excellently written.

WILLIAM J. RHEINFRANK,
Superintendent
Bureau of Street Sanitation
Milwaukee, Wis.

EDITOR'S NOTE: We will be delighted to send copies of this editorial to any who can use it.

CUT COSTS

MIX
PULVERIZE
RECLAIM
AERATE



NEW *Mix-in-Place* ECONOMY

The *all new* Howard UNIMIX is the low cost answer for mixing and pulverizing jobs of the contractor, developer or local government. UNIMIX is a power take-off blender-pulverizer designed to work off modern tractor power in the 55-80 h.p. class . . . the same power package now used for back-hoe and front end loader work.

Why pay *three*, *four* or *five* times more for self-propelled, single purpose blending equipment only to have it at expensive rest when the jobs are completed?

The UNIMIX is versatile . . . Mix and blend; pulverize and reclaim; add moisture for better compaction; aerate soil to speed production; strengthen bases and sub-bases with any additive and clear land.

Write today for literature and demonstration facts.

UNIMIX 80 mounted on Massey-Ferguson 85 (butane) tractor. City street reclamation in Amarillo, Texas using dry lime.

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The Question of Urban Coordination

The fact becomes clearly evident in urban areas across the nation that free and independently governed local municipalities will have to "coordinate" (one hesitates to use the word "restrict") some of that freedom in order to retain the independence and vigor of the municipalities in any large urban complex.

A free man willingly agrees to the restriction of liberty illustrated by a traffic light in order that his freedom can be meaningful. Similarly, independent, self-governed municipalities are learning that they also must coordinate their governmental services for the good not only of themselves but also of the entire area, in order to insure that independence.

In St. Louis County, we have witnessed controversy among existing governmental authorities over the proper distribution of these services. Undoubtedly the same controversy arises in each of the more than 200 great metropolitan areas. Nevertheless, as in St. Louis County, I am sure that the discord is more superficial than real. Public officials are keenly aware of the need for dynamic and intelligent change in our previously conceived notions of good municipal government.

Again, what is becoming clearly evident is that of the 98 independent municipalities in St. Louis County only a handful can satisfy the wants of its citizens. The self-determination formerly characteristic of each municipality, when each could govern independently of the others, prevails but now in a more limited sense. The difficulties are practical. Many have run out of land for refuse-disposal sites. Some favor use of incinerators on a county-wide basis. Some small municipalities with an inadequate tax base would desire the county government to assume construction and maintenance of major roads.

Certain municipalities have made contracts with the county government for services such as police and health. They would find themselves in a perilous condition if the courts were to hold that the county government has no authority to make such contracts. Moreover, the larger municipalities that provide these services themselves do not favor subsidizing such functions through these county governmental contracts.

Probably greater is the fear that the county government may swallow up and destroy the local municipalities; in my opinion, this is an ever-present danger. Nevertheless, each municipality may find it necessary to call for assistance in supplying different municipal needs and undoubtedly will have to agree to varying compromises of a collective nature. This becomes apparent by the resolution of the St. Louis County Municipal League, made last March, encouraging legislation that would recognize the county government as the appropriate unit to perform two area-wide functions: control of major roads and the operation of an incinerated refuse disposal program.

Today, the little cities in large urban complexes like our own *must* answer certain pertinent questions:

With continued urbanization, and increasing demands for service, coinciding with a rising standard of living, how will these independent municipalities coordinate their efforts to provide these needs within the present governmental framework?

Has the time come for a cold, impersonal look at these municipalities, with the purpose of considering consolidation into fewer but more functional units of government? Certainly this would lessen the need for the county government to carry their burdens.

Is the trend to centralization and the ultimate transfer of many municipal functions to the county government inevitable and, if so, is its administrative structure prepared to accept the responsibilities of these added functions?

These are questions that the people and the independent municipalities of St. Louis County and every vigorous, growing urban area, have to solve. Fortunately, they are questions that the elected officials are facing realistically and will solve in a realistic manner.

NATHAN B. KAUFMAN, Mayor
University City, Mo.

MODEL DAM BY R. S. BALDWIN

When it comes time to appoint a trustee or fiscal agent for revenue bonds, The Chase Manhattan Bank is at the service of state, county and municipal authorities. Chase Manhattan has the staff and experience to handle this function as trustee or fiscal agent in cooperation with banks in the areas where the projects are located. For complete details write: Corporate Trust Division, The Chase Manhattan Bank, 1 Chase Manhattan Plaza, New York 15.

OUR MUNICIPAL NOTEBOOK

IT'S EASY

. . . to find buried non-metallic water pipe if you use a little foresight. All you have to do is get some old telephone wire and bury it in the ditch above the pipe. Water Superintendent Elmer Lutz has used this method for several years to trace out asbestos-cement lines with his Fisher M-Scope pipe finder. Mr. Lutz is superintendent of the Selingsgrove Water Supply Co., Selingsgrove, Pa.

* * *

A COUPLE OF INNER TUBES

. . . proved to be just what was needed to permit repair of a washed-out manhole structure in Raleigh, N. C. The cause of the trouble was

the breakage of a 20-inch sewer line. Utility crews inserted a 15-inch corrugated iron pipe into the sewer and placed an inner tube on each end. When inflated, they proved to be perfect gaskets, permitting the workmen to drain the structure and rebuild it.

* * *

IN ADDITION

. . . to cleaning catchbasins these little truck-mounted hydraulic cranes seem to keep busy at other work, also. For example, at Bridgeport, Conn., Street Superintendent Roscoe W. Sanders has a Stedt hydraulic crane on a dump truck that he uses to pick up tree limbs after heavy winds, to lay sewer pipe, to clean debris from bridge abutments, and for many similar tasks.

The Brookline, Mass., Water Department has a similar crane on a Dodge truck, and uses it to lay water mains, to install and remove hydrants, to remove heavy rocks from trenches, to set heavy castings, and to handle the Mueller tapping sleeve and gate-inserting machines.

As for catch basins, Ipswich, Mass., assigns two men and a truck with one of these cranes and they have no trouble cleaning 25 to 30 catch basins a day. During the fall, town crews use the hoist to set hydrants, lay pipe, and do other tasks for the water department.

* * *

SOIL-ASPHALT-CEMENT STREETS

. . . is the way one would have to describe the street surfacing in Rockland, Me. The city has a number of old streets that had been treated with a dust-laying asphalt over the years. City Manager Lloyd K. Allen first scarified the asphalt surface with the city's Adams grader and then broke the pieces into the necessary fine condition with a Seaman Pulvimixer. A test showed that 8% cement content would do the trick. So now Rockland has good all-weather streets at a cost of less than $1 per square yard in an area where other road-building material is scarce.

* * *

UNDERWATER PIPE CROSSINGS

. . . aren't too difficult if you use the ball-and-socket type of cast-iron pipe. If the crossing isn't too wide, no more than 150 feet, you can pre-assemble the pipe to the contour of the stream bed, support it by cables suspended from an I-beam, and lower it into the stream gently, using two large cranes.

If the pipe is larger in diameter, and therefore heavier, and the stream bed wider, then you can float the line across using oil barrels which can be cut away, one at a time, and this will permit the gentle lowering of the line. Fort Lauderdale, Fla., has used methods similar to this on six submarine crossings involving pipe from 16 to 30 inches in diameter.

If you want more information on these topics, or any other municipal problems, drop a note to

The Editors
THE AMERICAN CITY
470 Park Avenue South
New York 16, New York

YOU NEED A BIG SWEEPER

. . . when your city has at least 15 miles of paved curbed streets to clean. At least Seal Beach, Calif., finds this to be true. The city has a Wayne mechanical sweeper with a three-yard hopper that cleans the entire paved street system twice weekly from 6 a.m. to 8 a.m. covering 90 gutter miles a month.

* * *

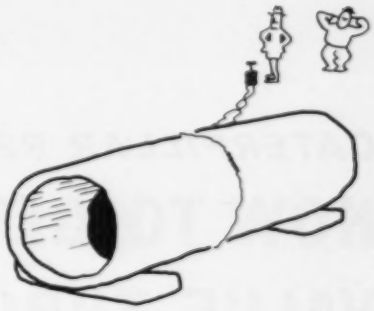
FIRST CONCRETE STREET

. . . was built in Bellefontaine, Ohio, in 1891. The first concrete highway was laid in Wayne County, Mich., in 1909.

* * *

CUT CONCRETE PIPE EASILY?

No problem at all. Use some Primacord, the detonating fuse used in most blasting operations. Jack Cunningham, an explosive expert with



the Atlas Powder Co., recommends using 100-grain Primacord detonated with an electric blasting cap. The pipe can even be severed at an angle. The principal drawback is the noise, but savings in labor may run as much as 75% to 80%.

* * *

MORE RUNOFF

. . . from your watersheds? Certainly. First, you can retain more of winter's snow on the watershed by careful timbering, thinning young stands of trees and varying the cutting pattern on mature stands. Snow evaporates twice as fast in open meadows than it does in semi-open pine, and three times as fast as it does in carefully timbered fir forests.

You can also eliminate water losses around impounding reservoirs by removing those trees that are "thirsty." Willows, cottonwoods, salt cedars are among the chief offenders. ◄◄

The 2 yd. 105 HP (flywheel) 944 Traxcavator—Proven by seven years of testing and widely accepted after a year in the field, this machine offers the Cat power shift transmission for instant shifting, forward and reverse, 1st and 2nd speeds. Other wheel loaders include the 2¾ yd. 966 and 1¼ yd. 922. Also available is a line of track-type loaders; the 2½ yd. 977, the 1¾ yd. 955, and the 1⅛ yd. 933.

CATERPILLAR REPORTS

HOW TO GET MAXIMUM MACHINE VALUE THROUGH BEST BID BUYING

Many communities have laws requiring lowest bid buying. Unfortunately, this intended protection of public funds collapses when applied to construction equipment.

Supervisor Bernard Amell, of the Plattsburgh, N. Y., Town Board, explains the realities of equipment buying this way: "The accepted machine cost figure must include not only the initial price tag but also the more important items such as fuel and oil consumption, ease in servicing, maintenance costs, final trade-in value, and source of replacement parts and service to eliminate down time. Failure to include these charges is hiding the true costs of the machine from the public."

When all these factors *are* included, this is Best Bid buying. It's Best Bid because it's real; it's Best Bid because the lowest *total* cost is best for taxpayers.

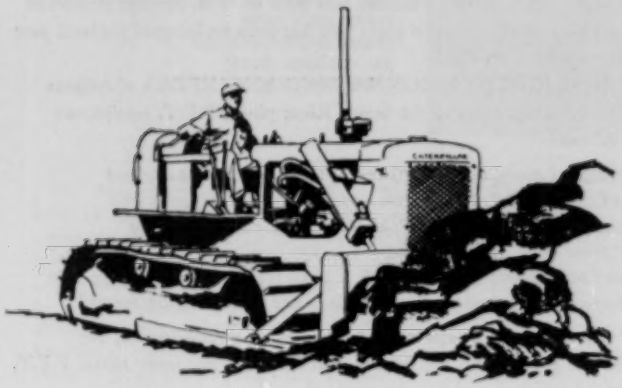
HERE ARE REPORTS FROM COMMUNITIES WHO BOUGHT ON BEST BID BASIS:

Vermont Division of Highways When this state organization began keeping records on two motor graders purchased in 1950, they found that the machine that cost more initially proved to be the best buy in the long run because it cost nearly $8000 less to operate over a nine-year period.

Harrison County, Indiana Accurate, by-machine cost records showed that a year-old Cat No. 12 Motor Grader required only a set of head gaskets and two spark plugs, with $25 labor, in one year. Two new machines of another make required major engine repairs, new clutches and side shift linkage during the same period.

Plainview, Texas This city kept operating costs on a Cat No. 212 Motor Grader and found that it

The 100 HP No. 112F—This new turbocharged motor grader will earn its keep in constant availability and low operating costs. It features the proven oil clutch which gives up to 2000 hours of operation without adjustment. The No. 112F is one of the four models available from 85 to 150 HP.



The 93 HP D6B Tractor—Featuring a Cat D333 Engine with unusually high lugging ability, this versatile tractor typifies the quality of Caterpillar-built equipment. The proven oil clutch, dry-type air cleaner, and lifetime lubricated track rollers help keep this one on the job with a minimum of servicing. Caterpillar's range of five tractor sizes extends from 52 HP through 335 HP.

cost only $100 for repairs over five years. On a Best Bid basis, they recently bought a Cat 955 Traxcavator.

Escambia County, Florida Machines purchased on a Low Bid could not be put back in operation quickly because it took a week or longer to get parts. Now, buying on a Best Bid basis, city officials feel the savings in upkeep will more than offset the initial price differences.

Dallas County, Texas Purchasing agents awarded the purchase contract to the highest bidder. They bought the higher price machines when the records proved that the low-price machines would cost over $12,000 more to operate over a ten-year period.

Plattsburgh, New York In addition to the long life of Caterpillar equipment, this city considers immediate availability of parts and services as part of the low cost of buying on Best Bid basis.

INITIAL COST • OPERATING COST
DOWN TIME • RESALE VALUE

When all these factors are taken into consideration, public and government officials all over the country have discovered that this Best Bid approach to purchasing points to Caterpillar. Some of the reasons are dependability, lower repair costs and fewer of them, top performance and high resale value of the Cat-built machines.

Individual machine cost records prove that Caterpillar equipment working on governmental jobs means more savings to taxpayers. See your Caterpillar Dealer for such records on jobs in your area. He'll also be glad to give you Time and Cost Record Books which allow you to keep individual records on your own machines.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U. S. A.

CATERPILLAR

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QUALITY-BUILT MACHINES —LOWEST TOTAL COST

Atlanta's Planned Future

WITH P.F.T.

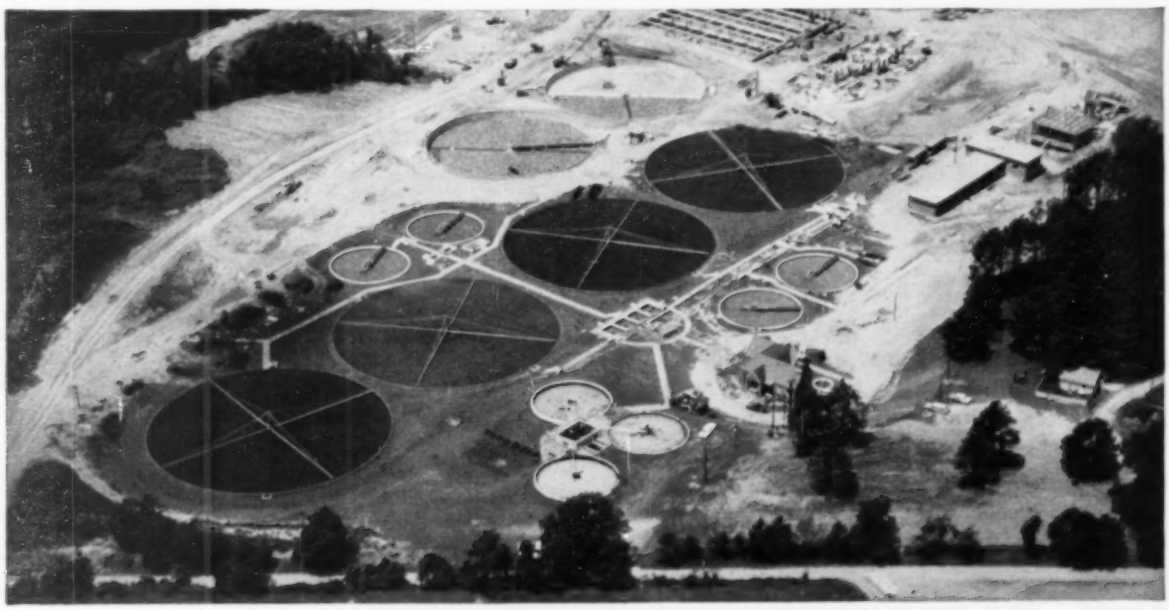
Atlantans have their eyes on the future. They are not content with their tremendous industrial growth which has averaged 83 new industries per year for the past 12 years and being the first city in the deep South reaching one million population. They are looking forward to an expanding growth. Atlanta is expanding and modernizing their sewage treatment plants to meet future needs.

The South River plant, one of Atlanta's largest, was built in 1936. Sewage treatment equipment by P.F.T. was selected for this plant and has been an integral planned part of every expansion.

WIEDEMAN AND SINGLETON, CONSULTING ENGINEERS of Atlanta designed each of the three additions to the South River plant. P.F.T. equipment at this plant is as follows—

1936—2 P.F.T. 55′ Floating Covers, 4 P.F.T. 173′ Rotary Distributors. **1953**—Added 1 P.F.T. 55′ Floating Cover, 2 P.F.T. #500 Heater and Heat Exchanger Units with P.F.T. Gas Safety Equipment. **1959**—Added 2 new P.F.T. high capacity Rotary Distributors on 150′ Filter Beds. **1960**—Added 2 P.F.T. 100′ Floating Covers, 2 P.F.T.—Pearth Gas Recirculation Systems, 2 P.F.T. #1000 Heaters and Heat Exchanger Units, Supernatant Selectors, Gauge Boards and Gas Safety Equipment.

This is the first of Atlanta's four sewage treatment plants to be enlarged in the comprehensive plans to prepare for the future. You'll be hearing more about P.F.T. in Atlanta's far-sighted program.



P.F.T. Floating Covers and Rotary Distributors at Atlanta plant.

P.F.T. *waste treatment equipment exclusively since 1893*

PACIFIC FLUSH TANK CO.

4241 RAVENSWOOD AVENUE, CHICAGO 13, ILLINOIS

PORT CHESTER, N. Y. • SAN MATEO, CALIF. • CHARLOTTE, N. C. • JACKSONVILLE • DENVER

Add a Boom To a Pick Up

With little effort the boom truck places curb sections on the sea wall.

We needed a boom truck so we built one. The sea wall at Lake Front Park needed beefing up. We had some salvage curbing but could not get close enough to the wall with ordinary equipment to install it.

We incurred little expense in adding a 16-foot boom to a four-wheel-drive Dodge Power Wagon which already contained a winch on the front. Our shop mechanic welded three-inch pipe for the legs of the boom. The snow-plow lift frame provides a rigid base for the boom hinges. An easily-constructed frame in back of the cab supports the cable which adjusts the angle of the boom between 30 to 80 degrees. The truck frame rigidly anchors this framework which has a length of chain at the end of the adjusting cable. The chain can snub any one of several grab hook links for angle adjustment. A ton of patching asphalt keeps the back wheels on the ground while the boom lifts and places the curb sections.

This home-made machine has been invaluable for the sea-wall construction. We expect that the truck will prove extremely serviceable for year-round activities in all portions of the city because of its mobility combined with the unusual capacity. In the spring, summer, and fall the converted vehicle will find its primary use in street maintenance, replacing or aiding the front-end loader which cannot match the speed of the pick-up in traveling from one job to another.

J. F. HANSEN, *Superintendent*
Department of Public Works
Grosse Pointe Woods, Mich.

Paved Streets Are Still Cheaper

Street maintenance costs keep going up, but Waukesha, Wis., still finds that it costs twice as much to maintain unpaved streets as it does paved streets and the latter are definitely better from every viewpoint. A review of maintenance costs for 1955-1959 showed:

• In the five year period the $2,000-per-mile cost to maintain unpaved streets went up to $2,430 per mile. Unpaved-street mileage increased from 30.15 to 45.77 and maintenance costs from $59,418 to $111,228.

• The paved-street maintenance cost in 1955 amounted to $860 per mile, while in 1959 it had increased to $1,321 per mile. Paved-street mileage increased from 44.38 to 49.10 and total maintenance costs went up from $39,189 to $64,864.

With 90% of our paved streets 30 years old or more, the additional attention required is reflected in the repair costs. We are now resurfacing many of these streets with two to three inches of hot sheet-asphalt. Also, in the last five years we added only five miles of paved streets as compared to 15 miles of unimproved.

W. E. DICK
Director of Public Works

Effects of Salt on Asphalt Paving

Extensive observations of asphalt pavements exposed to de-icing salts for many years indicate no deterioration. However, since experimental data and confirming documentary evidence are lacking, The Asphalt Institute recently launched a laboratory investigation to determine the effects, if any, of de-icing salts on asphalt pavements.

The study, part of a program designed to fill in voids in the literature of asphalt technology, will extend over a period of about one year. In the initial studies, two dense-grade mixes having different types of coarse aggregate will undergo tests simulating field exposure of asphalt pavements to repeated wetting with de-icing solutions. One aggregate is a limestone and the other a glacial gravel, both used with a natural quartz sand fine aggregate and a commercial limestone dust mineral filler.

The tests consist of subjecting the specimens to repeated weekly cycles of immersion in concentrated solutions of sodium chloride and calcium chloride for three days and drying at room temperature for four days. The control specimens are being subjected to the same cycle using water without salts. Control specimens also are being aged in the air. Changes in weight and stability of the laboratory specimens and in the test properties of the asphalt, extracted periodically from the specimens, are being used to evaluate the effects of the de-icing salts. ◄◄

MASSEY FERGUSON INDUSTRIAL EQUIPMENT

When the world's largest tractor manufacturer . . . Massey-Ferguson . . . engineers Industrial Equipment like this high-production Loader, you can be sure it is designed with both you and the job in mind. Extra quality is built in for "like new" performance for the life of the machine. For one example of Massey-Ferguson's engineered dependability, see the opposite page.

Engineered to stand up when the "chips are down"!

This is a Massey-Ferguson hydraulic cylinder and piston rod, engineered to eliminate leakage. The rod is specially tempered steel . . . centerless ground, induction hardened, and chrome plated to resist rock nicks, rust and corrosion; holds "new cylinder" hydraulic pressures.

Ordinary hydraulic cylinders and piston rods aren't engineered to take punishment—will rust, corrode, nick, and pit. This soon causes damage to seals—resulting in leakage of oil. The result is costly - loss of operating efficiency . . . plus repairs, and replacement expense.

Other facts you'll want to know: Massey-Ferguson Engineered Loaders and Backhoes provide unequalled strength and protection through the use of a "cradling" frame around the tractor. Lift-arm construction is arc-welded box frame; double bridge plates make it really tough. Twin dump cylinders, and the lift cylinders, are bigger and have more capacity than those on any other loader in its class.

NEW KIND OF ENGINEERED DEPENDABILITY PAYS OFF IN PROFITS!

Massey-Ferguson Industrial Division
12601 Southfield Road, Detroit 32, Michigan

SEE YOUR NEAR-BY MASSEY-FERGUSON DEALER TODAY

SAVE $414 per truck IN THE FIRST YEAR!

NEW FORD ECONOLINE VANS

Now, *you can save $312 to $433 in price* alone* on a Ford Econoline Van compared to old-style half-ton panels. In addition, you can save over $100 every 16,000 miles you drive!

These savings come with a man-size truck. The Econoline's cab-forward design with welded "body-frame" gives bridge-like strength and reduces dead weight to haul a full ¾-ton. Only 14 feet overall, Ford Econolines are nimble in traffic, easy to park, need less garage space. Big 4-ft. door opening (both curbside and rear) and level cargo floor provide new loading ease . . . new load workability.

Special Note To Pickup Owners: Now, you can protect your loads from weather and theft with an Econoline Van . . . yet, pay less* than for most conventional ½-ton pickups. And you can get the same $102 savings on operating expenses as shown at the right.

**Based on a comparison of latest available manufacturers' suggested retail prices*

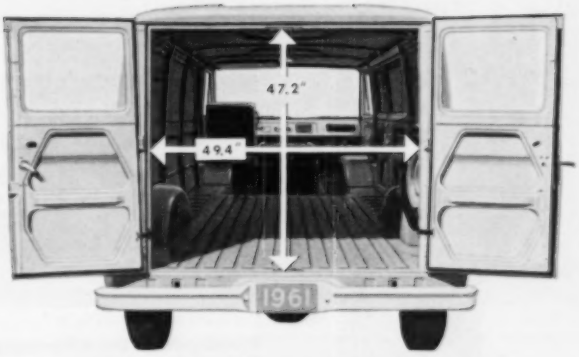
HERE'S HOW YOU SAVE

SAVINGS ON OPERATING EXPENSES EVERY YEAR!

GAS Econoline trucks can give 30% better gas mileage than conventional ½-tonners. Figuring 16,000 miles per year at prevailing gas prices, you save.....	$70
OIL—Crankcase capacity is only 3½ quarts instead of 5 quarts, and the recommended oil change interval is 4,000 miles versus 2,000 miles. In 16,000 miles you save.....	$13
TIRES—Econoline tires last longer, cost less to replace. Prorated saving for 16,000 miles as high as $53. Typical saving.....	$16
LICENSE—In many states (not all) the license for an Econoline costs appreciably less—up to $30.40 per year. Average for all states is.....	$3
	$102
SAVING ON PRICE—You can save $312 compared to even the lowest-priced conventional ½-ton panel—and up to $433 against others! Saving at least.....	$312
TOTAL FIRST YEAR SAVINGS...	$414

and you keep saving

$102 EVERY YEAR!



NO REAR ENGINE HUMP!

The Econoline's "up front" engine leaves a level, knee-high floor almost 9 ft. long. There's no awkward rear-engine-housing hump to shrink the back entrance or hinder loading. And the Econoline Van provides over 204 cu. ft. of loadspace . . . up to 57 cu. ft. more than conventional ½-ton panels.

FORD TRUCKS COST LESS

SEE YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" FOR PROOF!

FORD DIVISION, Ford Motor Company

Connecticut Towns Improve Personnel Management

Personnel management—at one time the stepchild of administrative operations in Connecticut's towns and cities, generally relegated as a secondary duty for chief executive officers or finance directors—is coming into its own as an integral part of the executive function. The University of Connecticut's Institute of Public Service reports that local governments in this state are investigating new personnel systems or improving the old ones; almost all communities are displaying interest in what is being done elsewhere in personnel work.

Before World War II, New Haven and Bridgeport were the only two Connecticut cities with a merit system. New Haven's system goes back to 1897, making this city one of the first in the United States to enact a civil service law in the reform period that followed President Garfield's assassination. At the beginning of 1950, only two other cities in Connecticut had a merit system. Stamford and Hartford.

By 1960, this picture showed marked changes. According to questionnaires filled out recently for the Institute by chief executive officers of 64 of Connecticut's 92 towns and cities over 5,000 population, these practices were revealed:

31%—use the merit principle
16%—have personnel directors
47%—have position classification
48%—have pay plans
38%—have entrance examinations for some or all positions
27%—give their employees permanent status after a probationary period
55%—have procedures for handling employee grievances
50%—give employees the right to a hearing
39%—place some restraint upon employees' political activities.

The Institute feels that part of this change is due to the spectacular population growth of Connecticut's suburban and rural areas, necessitating increased municipal staffs all over the state. Makeshift personnel arrangements no longer suffice.

The Institute also attributes part of the change to Connecticut's home-rule legislation which permits municipalities to draft charters and establish their own forms of government. Personnel is an important consideration of charter commissions. ◄

Why take a chance? Inferior, inexpensive strainers can only mean costly, time consuming replacement. When you install a Cook Well Strainer you are guaranteed years of superior service attested by thousands of installations that are still producing water at their original G.P.M. The exclusive design of Cook Strainers permits the most direct and unobstructed water way from the water bearing formation into the well. The V-shaped slot allows for maximum development which is accomplished by the removal of silt, alluvium, clay and fine sand from around the outside of the strainer. This provides a natural filter of coarser and more uniform sand and gravel.
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YEAR after YEAR with
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Investigate all the advantages of Cook Strainers. They are available in Red Brass, Silicone Bronze, Armco Iron, or Stainless Steel; in as many different slot sizes as required. Eight to twenty-four hours delivery often possible by telephoning Cincinnati HUmboldt 1-8800.
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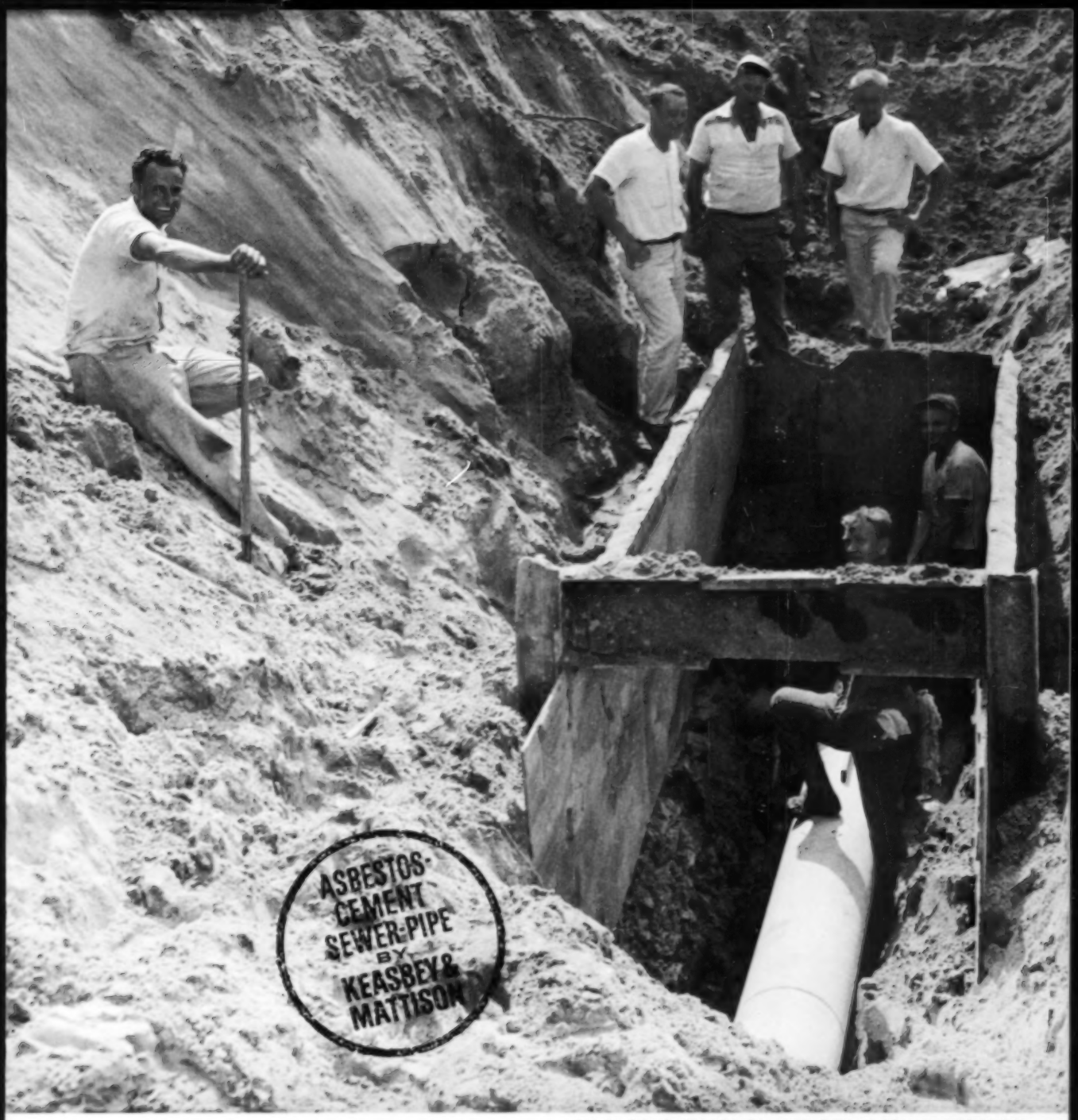
WORLD'S LEADING NAME IN WELL STRAINERS

PIPELINE WATER HAMMER

. . . often causes a sudden closing of a check valve at a water pump; it can be lessened in a number of ways. For example, a fly-wheel attached to the shaft of a pump will slow it gradually, thus cushioning the surge. Another suggestion is to use a slow-closing hydraulic valve instead of a check valve on the pump, permitting reversal of the pump and backward rotation long enough to deaden the water-hammer surge. This reverse action must not be too great, however, since it might introduce serious problems in shafting and bolting.

Still another suggestion, applicable particularly to large conduits, is to use a cylindrical check valve that shuts slowly by electric power. Another is to supply a bypass on the pump, or even to get the check valve so that it will not close entirely, and let the pump run in reverse until a manual valve can complete the closure. The use of air chambers will also help. ◄◄



P. H. Van Orden, President, C. L. Peterson, Vice-President and Treasurer, and R. H. Webb, Foreman of the Van Orden Company, Contractors, of Grand Rapids, Mich., supervise the installation of "K&M"® Asbestos-Cement Sewer Pipe at Paw Paw, Mich.

10,000 FT. OF SEWER PIPE LAID...

. . . not enough infiltration to measure

Read how the Van Orden Company solved the problems of installation and of infiltration when pipe had to be laid 9 ft. below the water table.

"the ease of handling and assembly saved us dollars and time!"

P. H. Van Orden

"Construction of the Paw Paw trunk sanitary sewer called for installation of pipe at depths up to 19 feet, where water table was at 10 feet. Infiltration had been the major problem in other sewer installations in the area. We solved this problem by using "K&M" Asbestos-Cement Sewer Pipe with its FLUID-TITE joint. With 10,000 feet of sewer in, we haven't had enough infiltration to measure.

"The longer laying lengths and the speed with which a joint can be made are definite time-saving factors, which have added to our production. Less time spent grading pipe and handling material means dollars saved."

Rigorous tests prove "K&M" Asbestos-Cement Sewer Pipe is infiltration-tight at 25 psi . . . a pressure equivalent to that of a 58-foot head of water.

"K&M" Asbestos-Cement Sewer Pipe wont rust, rot, or corrode. Its smooth bore remains clean, permanently. Flatter grades are possible. Fewer lift stations are required.

Maintenance-wise, the village of Paw Paw, Mich., will enjoy tax savings. "K&M" Asbestos-Cement Sewer Pipe is practically indestructible. Requires fewer inspections, because root growths do not penetrate the exclusive FLUID-TITE coupling.

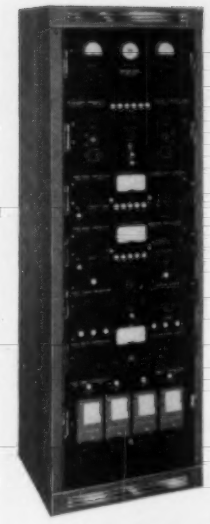
Write today for more information on "K&M" Asbestos-Cement Sewer Pipe to: Keasbey & Mattison Company, Ambler, Pa.

Keasbey & Mattison at Ambler

K·M BEST IN ASBESTOS

Two-step assembly! Lubricate the tapered end of "K&M" Asbestos-Cement Sewer Pipe, then slide it into the exclusive, patented "K&M" FLUID-TITE® Coupling.

Light weight reduces shipping and handling costs...saves on installation time. At the same time, there's a minimum of wastage and breakage on the job, with tough "K&M" Asbestos Sewer Pipe.



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For All Traffic Control Needs

Pretimed & Actuated Systems

The "EC" Traffic Adjusted System

A practical ultra-modern computer program system capable of automatic control in highly concentrated grids or on heavily travelled key arteries. The central office master is custom-designed from standard plug-in chasses to meet the exact need of your application. Easily expanded to meet any future requirements. Works equally well with pretimed or actuated local control.

Eagle Bulletin E50

The EC LOCAL CONTROLLER is used with the EC Master. Has a *minimum* of 224 traffic function combinations built-in for selection from the Master panel.

Eagle Bulletin E50

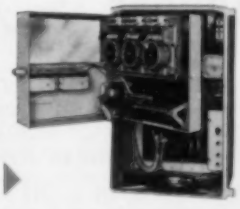
The Monotrol System . . .

Monotrol is a two-wire system of interconnection. Thirty-one functions may be transmitted over one circuit to give traffic movement flexibility at the intersections. Master is built to your specifications in accordance with functions desired. The Monotrol System adapts itself well to any pretimed local controller having a selection of splits and offsets from which to choose.

Eagle Bulletin E40

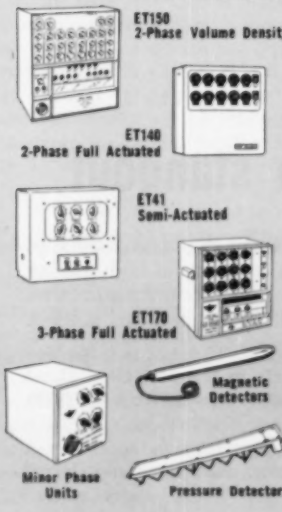
EF20 MULTIDIAL LOCAL CONTROLLER may be applied as single dial isolated intersection controller or built-into an expansible multidial triple reset interconnected system. Perfect for use with Monotrol System.

Eagle Bulletin E20



A COMPLETE LINE OF ACTUATED CONTROLLERS AND ACCESSORIES

Eagle Bulletin F10



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- *A thirty-five year background of sound experience*
- *A strong research and development program*
- *Application Engineers always ready to serve you without obligation*
- *A crew of engineers ready to adapt your needs to specially designed control equipment*
- *Sales Engineers in all principal cities to offer you immediate attention*

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Easy-Read Model A
frostproof design
5/8" through 1" x 1¼"

Bigger face, better features make new Badger *Easy-Read* a standout

You're looking at the life-size face of the new Badger Easy-Read magnetic drive meter. Its biggest-face-in-the-industry (¼" high digits) is just one of Easy-Read's exclusives. Here's more:

SEALED, REMOVABLE REGISTER — Off comes its head without even disturbing the meter in the line. Easy-Read's register and cover can also be mounted in any of four positions for most convenient reading. Register and gear train parts operate in a clean, dry, lubricated, sealed housing to forever eliminate fogged registers.

TRULY PERMANENT MAGNETIC COUPLING — Easy-Read's ceramic magnets are made of high-quality barium alloy material — rustproof, noncorrosive, proven truly permanent. No stuffing box needed.

INTERCHANGEABLE PARTS — If yours is a Badger meter system, many parts in the new Easy-Read are interchangeable with the parts in your present meters.

Ask your Badger representative soon for a demonstration of the new Badger Easy-Read magnetic drive meter.

Split-case
Easy-Read meters
5/8" through 2"

*Trademark

Badger Meter Mfg. Company

4545 West Brown Deer Road • Milwaukee 23, Wisconsin

By-Product Sales Cut Sewage Treatment Cost

Effluent from Amarillo's activated-sludge plant serves two industries as cooling and make-up water.

Amarillo, Texas, recovers about 60% of its sewage-treatment-plant maintenance and operating costs through the sale of effluent and sludge. Further savings accrue through the use of sewage-sludge gas at the plant.

Two industries, a local refinery of the Texas Company and generating plants of Southwestern Public Service, use about 1.5 mgd each of the reclaimed sewage. They pay about 10 cents per 1,000 gallons to the city. Fresh water would cost approximately 18 cents per 1,000 gallons. The refinery uses reclaimed water in cooling towers and for boiler make-up. The power company uses the reclaimed sewage primarily for cooling purposes. Effluent going to the refinery must be pumped ten miles and lifted 330 feet.

Prior to construction of Amarillo's activated sludge plant in 1954, the Texas Company expresse confidence in the reclaimed sewage plan by entering into a 30-year contract with the city. Under the agreement, Amarillo was to construct a 4.5-mgd plant plus three days effluent storage capacity, a pumping station and transmission line to the refinery. The company agreed to provide additional treatment as required while the city agreed to produce an effluent having a pH between 6.8 and 9.0; suspended solids not exceeding 25 mg/1; B.O.D. not greater than 25 mg/1; total dissolved solids not exceeding 1,000 mg/1; and delivered water with a chlorine residual of at least 0.1 mg/1. These limits can be changed upon mutual agreement.

Present estimated annual revenue is slightly over $68,000, of which $65,000 is from the sale of plant effluent. The sale of sludge (digested, air-dried and pulverized) brings in about $3,000. It is sold to the public at $3 per cubic yard.

The treatment plant also uses reclaimed sewage for various purposes as well as another by-product, sewage-sludge gas. Some 30,000 cubic feet of the plant's 180,000 cubic feet daily production is used in the heat exchanger to heat the buildings and digester contents. The city is presently considering the use of gas engines to utilize the balance of the gas now being wasted.

Present plans call for doubling plant capacity. Head Chemist and Plant Superintendent Clarence Scherer points out that as the quantity of effluent increases, it too will be put to good use. The schedule of the Southwestern Public Service Company calls for use of 4.5 to 5 mgd by 1965, as additional generating capacity is erected. ◄◄

Correcting Sewer-Ordinance Inequities

The Metropolitan District Commission of Hartford, Conn., adopted amendments to its sewer ordinance to correct inequities in assessing sewer costs. These amendments will, under certain conditions:

- **permit the deferment of assessments where abutting properties will not realize immediate benefits.**
- **prevent an owner from connecting to a publicly owned sewer in MDC member towns without paying his share of the costs.**

Assessments for sewer lines laid in undeveloped rear lands may be deferred until the benefits of the sewer are realized. However, lines laid in existing streets or "paper" streets accepted by the town remain under the bureau's standard assessment procedure. Sewers installed in or adjacent to lands set aside for cemetery purposes fall under the deferred assessment procedure.

Owners of property near the terminus of a sewer line may connect to the line upon payment of the connection charge. Also an owner abutting a line laid under agreement between a developer and the MDC bureau will pay the connection charges to MDC should he choose to connect.

Sewer charges in certain cases have been set by the bureau to insure the fair sharing of costs by all users of the line. The connecting charges are:

- **Ten dollars per front foot for residential properties served by a line up to six inches in size.**
- **Thirteen dollars per front foot or $2,000 per acre, whichever sum is larger, for residential properties served by a line eight inches or larger and all commercial and industrial properties.**

MDC member towns include Hartford, East Hartford, Windsor, Bloomfield, Newington, Wethersfield and Rocky Hill; they have a sewered population of about 295,000 persons.

WILLIAM R. MCCURDY
Director of Public Information
The Metropolitan District
Hartford, Connecticut

Eldrin is the new insecticide that kills resistant insects. Emulsifiable with water, Eldrin eliminates costly petroleum products. Its long lasting residual action is effective against all flying or crawling insects . . . even those that have become immune to DDT and other chlorinated insecticides. Eldrin kills flies, mosquitoes, ants, moths, silverfish and cockroaches. Controls grub worms, chiggers, and aphids. Eldrin is safe for trees—shrubs—lawns—ornamentals.

PORTABLE—DART POWER SPRAYER

Compact, lightweight, and portable, the Dart Power Sprayer gives big sprayer action at small sprayer cost. A small sprayer for small areas, the Dart is ideal for municipal and industrial insect control. Easy-to-operate, the Dart can be used for mist, fog, or distance spraying. See the man from National Chemsearch for on-the-spot assistance with your insect problems. Write for information on the Eldrin Insect Control Program.

ELDRIN KILLS EVEN RESISTANT INSECTS

NATIONAL CHEMSEARCH CORP.

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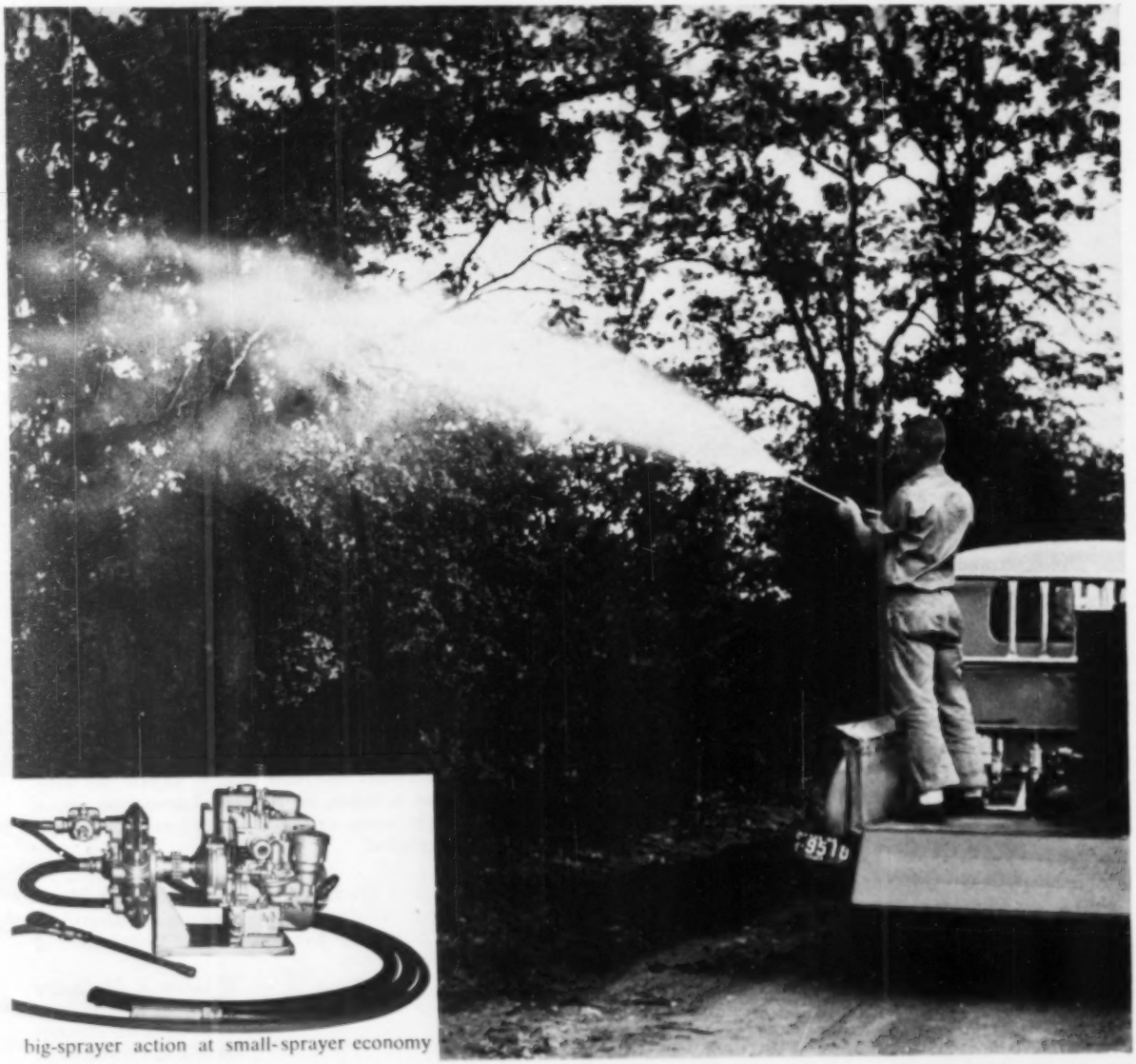
NEW POWERFUL INSECTICIDE GIVES POSITIVE CONTROL!



big-sprayer action at small-sprayer economy

No One-Class Housing

Every urban-renewal enterprise enjoying government support through use of eminent domain, tax abatement, mortgage insurance or subsidy, should avoid the one-class-housing label. Instead, all should provide for heterogenity of residential facilities and population in proportions appropriate to the area. So argues Elizabeth Wood, former director of the Chicago Housing Authority, in a new booklet, "The Balanced Neighborhood," which has been published by the Citizens' Housing and Planning Council of New York City.

In place of large, one-class projects standing as planned islands, urban renewal would develop large-scale neighborhood plans which include a combination of housing types, either new or combinations of new and old.

Renewal and conservation programs need to emphasize partial clearance and scattered new buildings, Miss Wood insists. No residential plan should be developed without comprehensive provision for community facilities, whether by direct public action or by private developers. If no private developers are available at the time of initial development, that land should be set aside for future development.

The booklet can be purchased for 50 cents from the Citizens Housing and Planning Council of New York City, Willkie Memorial Bldg., 20 West 40th St., N. Y. 18. ◄◄

Dade County Wins Award for Hiring Handicapped

Metropolitan Dade County and the City of Miami recently received the Mark A. Light Memorial Award by the Dade Committee to Employ the Physically Handicapped.

This honor also recognized Metropolitan Dade County for being the first county in the nation to establish a special section of its personnel department to coordinate community activities on the subject of employment of the handicapped.

The city's award was for its pilot project in hiring the handicapped for a specific job category. A civil-service examination was held just for the physically handicapped for the position of police complaint clerk.

More than 110 took the test and the 15 men chosen for the available jobs now are in training at the Police Academy. ◄◄

Air Pollution Control News

Court Rejects Petition

The United States Supreme Court, in a disappointing decision, apparently prefers dirty air in New York to the rather remote possibility of affecting gas prices. By a 6-to-3 vote, the Court rejected a petition by the Consolidated Edison Company of New York, Inc., to burn natural gas under some of the boilers in its power plants, as an air-pollution-control measure. The petition, supported by the City of New York, had been rejected by the Federal Power Commission, but the FPC's ruling had been unanimously reversed by the United States Court of Appeals for the Third Circuit.

St. Louis Joins Fight

St. Louis, which was in the forefront of the fight against smoke, has joined the fight against all forms of air pollution. Mayor Raymond R. Tucker has signed an ordinance establishing in the Department of Public Safety a new Division of Air Pollution Control, combining the duties of the smoke and health divisions. The latter division, which previously fought air pollution, had had no full-time employee in this work in recent years.

Form Research Council

The American Society of Civil Engineers has established a Research Council on Air Resources Engineering. The objective of the Council is "to advance engineering knowledge and practice through stimulating and guiding research and assisting the financing of it in the field of air-pollution control; to organize research projects; to interpret the findings of such research in cooperation with professional committees; and to make available information and recommendations resulting from such research."

Sampling Station-on-Wheels

New York State's first mobile air-sampling unit was placed in operation recently in Niagara County, where field work had been begun as part of the Air Pollution Control Board's comprehensive survey of that country's air-pollution problem. The sampling station-on-wheels is nearly self-sufficient for periods up to 30 days. It provides basic facilities for cataloging and analyzing a wide variety of gases, including particles suspended in the air, such as ragweed pollen, coal dust and odorless and invisible gases.

Six States House Study

A new air-pollution study, scheduled to begin in July, will take place in six cities, Chicago, Cincinnati, New Orleans, Philadelphia, San Francisco and Washington, D. C., under the auspices of the United States Public Health Service. The study is concerned with gases found in the unburned gasoline from automobile exhausts.

Regulates Plant Expansion

The Florida State Air Pollution Control Commission has adopted a new rule which provides that no existing industrial plant can expand, nor a new one be built, without prior approval of the commission, if the plant is likely to add to air pollution. This is the first Florida regulation against air pollution "before the fact." Dr. E. R. Hendrickson, chairman of the Commission, conceded that there are no "omission standards" by which to measure the pollution potential of a prospective plant.

—Prepared by Kenneth Kowald

AMERICAN *Water Meters*

A SIZE AND MODEL TO MEET EVERY REQUIREMENT

Just one QUALITY... *the Finest!*

Smallest American Meter, 5/8" x 1/2" . . . largest, the 6" Heavy Duty Meter. Solid Casing and Frost Bottom types . . . capacities from 20 GPM to 1000 GPM — to meet every water requirement. Add to this large range in sizes, the most complete design flexibility of any meter and you have the reason why so many water utilities specify AMERICAN.

Every AMERICAN Meter, regardless of SIZE, has the basic, built-in features of unmatched construction simplicity, unequalled measuring accuracy, and the widest range of parts interchangeability.

Every AMERICAN Meter is a measuring instrument of the highest quality, built to last longer, with the least maintenance; to provide greater earnings and better public relations.

For complete details, write for Bulletin 58

BUFFALO METER COMPANY, INC.

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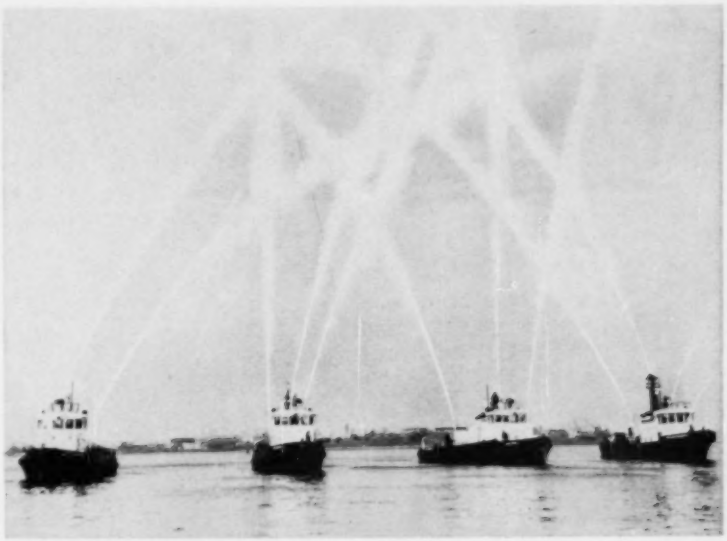
A Dousing for Harbor Fires



Harbor fires are in for a dousing now, since the fireboat, Mayor Harold J. Grady, reported for duty on October 14, 1960 in Baltimore, Md. Baltimore now has four first-class fireboats, plus the command boat, Beverly Ober.

The new diesel boat, 85 feet 4½ inches long with an eight-foot draft, has a pumping capacity of 6,000 gpm. The engine is a ten-cylinder 880-hp opposed-piston Fairbanks, Morse driving two eight-inch Fairbanks, Morse fire pumps. For oil fires 1,000 gallons of foam compound are available. ◄◄

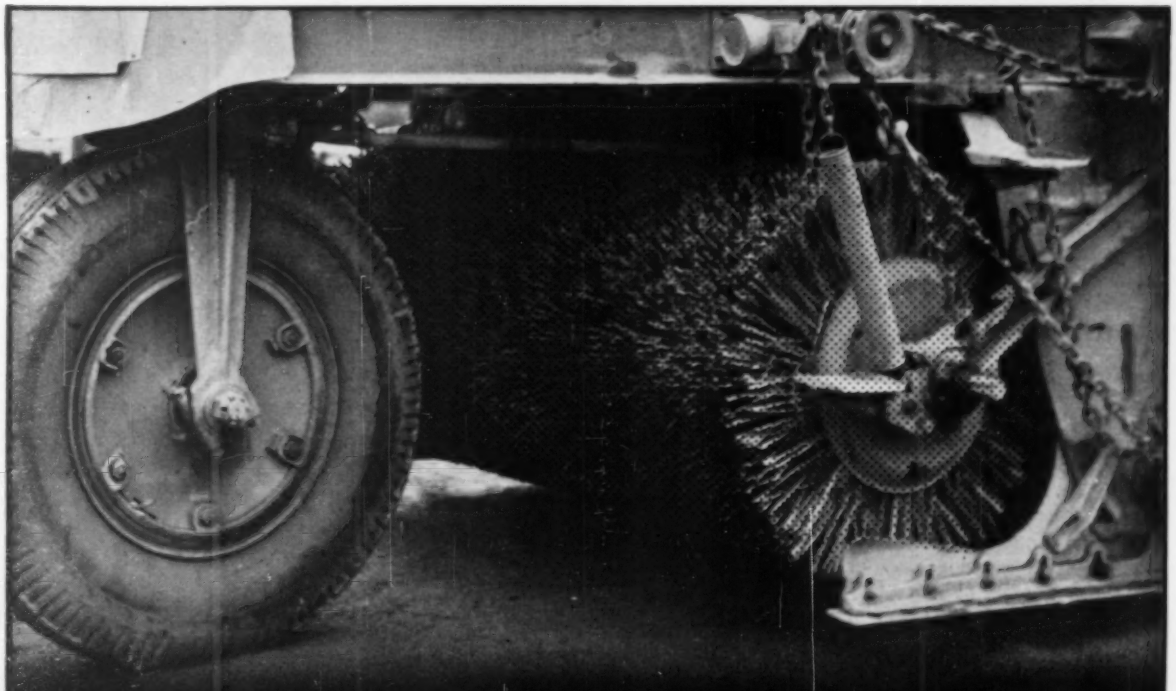
Night Parking Prohibited

For many years, the City of La Verne, Calif., has had an ordinance prohibiting parking on streets or alleys between 2 a.m. and 5 a.m. The purpose is to assist the police and fire departments. Burglars and prowlers usually have to rely on an automobile for transportation and a single parked vehicle is easily spotted and investigated. Other cities that have this requirement confirm its effectiveness.

The problem with the La Verne ordinance was that there was no provision for exceptions to alley parking. Since real hardships did exist, the level of enforcement dropped to the extent that numerous cars parked illegally in the alleys at night. Enforcement on streets was kept at a high level. On recommendation of the police chief, the fire chief and the city manager, the City Council acted to provide a method to enforce the ordinance effectively. An amendment effective April 1, 1961, established a special permit procedure for all-night parking on streets and alleys. Persons who cannot comply with the prohibition against parking all night in alleys or on streets must apply for a permit. The charge of $2 per year is to cover administrative costs including issuance of a reflector-type identifying sticker to be placed on the vehicle windshield. Permits will be issued only in hardship cases where need is demonstrated and where parking will not impede police and fire department services. Permits denied may be appealed to the City Council. ◄◄

Something for Everyone

Here's a regular gift-laden Christmas tree with signals for the pedestrian, parking invitation for the motorist, fire-alarm light for the desperate, and a street light for everybody. The place is Newburgh, N. Y., and the men are City Manager Mitchell and Superintendent of Fire Alarm Seymour inspecting a Gamewell fire-alarm box. ◄◄



LONGER BRUSH LIFE WITH SANFAX 299

Hundreds of cities and towns from coast to coast are enjoying substantial success with Sanfax 299. Decreased broom wear of 25 percent to 50 percent (and more) can be realized with the use of Sanfax 299 . . . depending upon street conditions and efficiency of operator.

You gain four ways . . . CLEANER STREETS, at a saving in TIME, WATER, and BROOM WEAR

SANFAX Corporation®

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ATLANTA, GEORGIA

ATLANTA
CHICAGO
SAN FRANCISCO
TORONTO CANADA

A white-uniformed driver and a new white truck attract attention to the sanitary aspect of municipal collection.

Refuse Improvement Gains Customers

A new compaction truck, improvements in collecting and billing and an intensive public-relations campaign are aiding Brinkley, Ark., to add new refuse customers in an effort to upgrade community sanitation. In the few months since the new truck arrived, 50 additional customers have taken advantage of weekly residential collections for a monthly fee of $1.

In 1957, the city council purchased a second-hand refuse-collection truck in an effort to improve the grave sanitation conditions. Several customers took immediate advantage of the voluntary pick-ups for the nominal monthly fee but most did not. As late as one year ago, when Brinkley changed to the council-manager form of government, only a sixth of the residentiai area was using the municipal service. The others still hauled their own, some of them at infrequent intervals. The only real bright spot was that most business firms were taking advantage of the municipal collection on a volume-charge basis.

It was then that we improved the routing, the pick-up schedule and the billing procedure which resulted in the addition of more than 100 new customers. Newspaper and radio advertising assisted in telling the story of the improved service.

December 1960, saw the replacement of the old truck, which was in a sad state of repair, with a new 16-yard Pak-Mor unit mounted on a 1961 Model I-B172 International truck. The net cost of the new collection unit was $6,255, which included $737 credit for the trade-in of the old truck and body.

Compulsory Collection

In the two months following the acquisition of the new truck another 50 customers joined the ranks. We anticipate that a majority of the citizens will be using municipal refuse collection in the near future. When that day arrives, the council plans to call a special election for the purpose of voting on a compulsory sanitation ordinance.

At the present time the driver follows a customer list to determine which refuse to collect. Jail labor provides two pick-up men. They work nine hours a day during the week and five hours on Saturday.

Billing improvements include the use of post cards rather than statements in envelopes. A saving in postage, time, and materials results. Delinquent customers receive two additional bills and a telephone call before we discontinue service and refer the account to the city attorney for collection.

For disposal, we are presently using an ordinary dump which we hope to convert to a sanitary landfill soon. This change will reduce the fly and rodent problem as well as provide reclaimed land.

JON WILSON
City Manager
Brinkley, Ark.

Colored Refuse Containers

New York City's gold-painted litter containers on posh Fifth Avenue may be ritzy but they only copy a good, solid British precedent, says *Public Cleansing*, the journal of the British Institute of Public Cleansing, in its December issue. In a light-hearted little article, Editor N. G. Wilson notes that New York is only following the lead of Westminster with its aluminum-painted litter bins matching the lamp standards and Piccadilly Circus, Trafalgar Square and Parliament Square with their dull bronze litter bins.

Editor Wilson also quotes a Mr. Dodsworth of Harrowgate who believes that yellow is the best color for litter bins. He doesn't give Mr. Dodsworth's reason but promises to find out. ◄◄

Trench under the track?

...easy job with a John Deere!

Needle-threading precision is standard performance for John Deere Backhoes with two-lever control. Boom, bucket, and dipper-stick functions are always right in the operator's hands—an important feature which provides fast working speeds, smooth operation. Instant-response hydraulics assure deft control.

Two John Deere Backhoes, the center-mounted 50 and five-position 51, are available to meet the many varied needs of municipal street departments. When mounted full left or full right as required, the 51 makes it possible to trench flush along building foundations, walls, or fences. The mounting position of the rotary boom cylinder is easily changed in the field by one man, using only a wrench and the backhoe's hydraulic power.

John Deere Backhoe combinations are now offered with the 40 h.p. "1010" Crawler or Wheel Tractor, and the new "3010" Wheel Tractor with 64 h.p. gasoline or 69 h.p. Diesel engine.

For full specifications and a demonstration, contact your John Deere dealer now through the yellow pages of your telephone directory. John Deere, 3300 River Drive, Moline, Illinois.

JOHN DEERE

LOADERS

BULLDOZERS

BACKHOES

AND

CONSTRUCTION

EQUIPMENT

$176.48 Plants a Tree In a Business Area

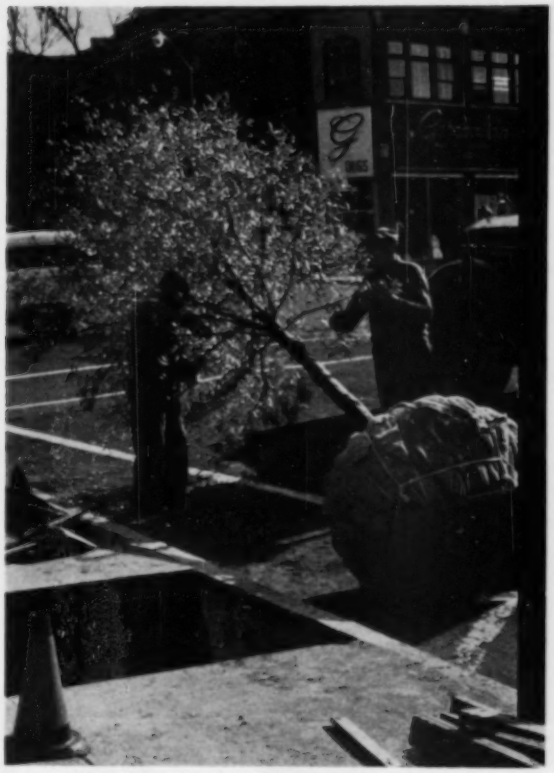
Beginning with a pilot planting of five Augustine ascending elms in 1956, Englewood, N. J. (p. 219, THE AMERICAN CITY, September 1960), has now completed four downtown planting programs for a total of 49 trees in place at a cost per tree ranging from $163 to $177.96. Meeting at first with general indifference from the merchants affected, the planting program is now generating enthusiasm.

Typical of the tree planting costs are those of the November 1960 program. The itemized costs are as follows:

Contract planting		
2 Willow Oaks, 5 to 5½ inch diameter	$350.00	
3 Ginkgos, 3 to 3½ inch diameter	180.00	
3 Pyramidal Norway Maples, 3½ to 4 inch diameter	255.00	
1 Pyramidal Norway Maple, 4 to 4½ inch diameter	100.00	
3 Augustine Ascending Elms,* 3 to 3½ inch diameter	105.00	
		$990.00
City Labor Cost		
Remove sidewalk, excavate, backfill, construct barricades, 224 man-hours		497.28
Materials and Contract Labor		
50 cubic yards topsoil	212.50	
Sand	25.00	
Stone	15.00	
Paving blocks	65.00	
Barricade lumber (reusable)	63.00	
Paving labor, pit area	250.00	
		630.50
Total cost, 12 trees		**2117.78**
Average cost per tree, November planting		**$176.48**

*** City furnishes, contractor transplants.**
Note: Repaving has not been completed; estimated costs based on previous plantings are shown. City-owned equipment is not charged against tree planting.

Choosing columnar or upright varieties of trees, the Department of Parks and Shade Trees contracts for the furnishing and planting but performs most other incidental labor with its own personnel. Myriad underground utilities, as well as theatre marquees, parking meters and fire hydrants, complicate the choosing of sites for the plantings. A minimum curb clearance of three feet and a minimum planting interval of 40 feet protect the trees from automobiles and from each other.



Workmen prepare to plant a three-inch tree in downtown Englewood.

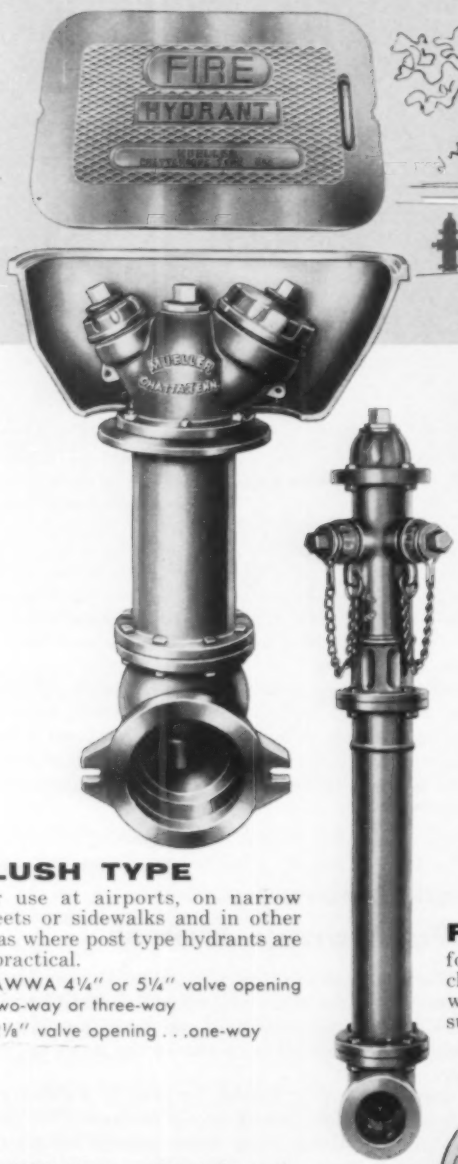
Maintaining the new trees will present some problems. Watering, feeding and spraying will have to be night operations. The location of the store windows will prohibit the use of the city's existing mist blowers. Some type of hydraulic sprayer will be necessary for this job. ◄◄

Golf Course Is a Money Maker

All citizens, golfers or not, share in benefits from Orangebrook, the city's golf course of Hollywood, Fla. It has consistently produced net revenues which approximate a one-mill reduction in the city's tax structure.

Orangebrook first opened for play in February 1935 with six holes, and greens fees of 50 cents. Two months later another three holes were opened for play, and in a week's time about 250 golfers would make the rounds. Orangebrook's second nine was added in the winter of 1936, the third nine in 1955, plays now to more than 2,000 golfers a week. On the first of this year, the city added a fourth nine. ◄◄

for that specialized application...



MUELLER®
Fire Hydrants

Built with the same care and quality as the Mueller AWWA Standard Fire Hydrants for municipal use, these Mueller Fire Hydrants for special applications have exactly the same design features, too:

- Compression-type main valve that provides positive closures is always ready for use.
- Automatic drain valve that is flushed clean with every operation, empties barrel completely to prevent freezing.
- O-ring that assures positive, leak-proof seal requires no maintenance.

Standardize on the quality and features of Mueller fire hydrants for municipal, industrial, commercial and private fire protection systems.

FLUSH TYPE

For use at airports, on narrow streets or sidewalks and in other areas where post type hydrants are impractical.

AWWA 4¼" or 5¼" valve opening two-way or three-way

2⅛" valve opening . . .one-way

POST TYPE

for use on private estates, at country clubs, in parks, for dead-end flushing and wherever smaller amounts of water are sufficient.

2⅛" valve opening
. . . one-way or two-way

Write for complete information and specifications.

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Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited, Sarnia, Ontario

A Change in Brooms Cut Sweeping Costs

Charles Cassidy, foreman, Division of Streets and Sewers, compares some of the new prefilled wire sections with the old hickory-fiber brooms.

Although our street-sweeping program is the same in substance, the cost is down. This is the result of our new method of making sweeper brooms—a system we find to be both effective and economical.

Under our new system we use the DANLINE wire brush instead of the old hickory-splint broom. The DANLINE, made by the Newark Brush Co., consists of a series of pre-filled discs or sections mounted on a permanent steel broom core. The core is reused and we do the assembly work in our own shop.

While the cost of the wire broom is more than the hickory-fiber broom, this is more than offset by the additional sweeping mileage obtained. A comparative test showed 82 miles swept with the old type of broom against 864 miles swept with the wire brush. Maximum effectiveness with the wire brush lasted about 700 miles—still 8½ times that of the old broom.

Two men would work one complete day to tear down and rebuild the old type of broom. This cost $29.60 for labor and $12.65 for material, or a total of $359.12 for 8½ brooms (the number required to sweep the 700 miles effectively, now swept with one wire brush).

One man can tear down and rebuild a wire brush in approximately two hours at a cost of $3.70 for labor and $187.50 for material, or a total of $191.20.

Besides saving about $168 per 700 sweeping miles we also save some 134 man hours.

We employ three sweepers in the process of our work, an Elgin M-81, an Elgin Street King, and a Wayne purchased last year. We use the new sweeper both night and day for a total of 16 hours per day while the two older machines operate during the day only. The business district is swept six nights per week. The daytime crews sweep the residential streets and cover the city in a clockwise fashion. Because of heavy traffic, main thoroughfares are also swept at intermediate times.

WILLIAM D. KIRBY
Superintendent
Division of Streets and Sewers
Decatur, Ill.

More "See-Power" for New York

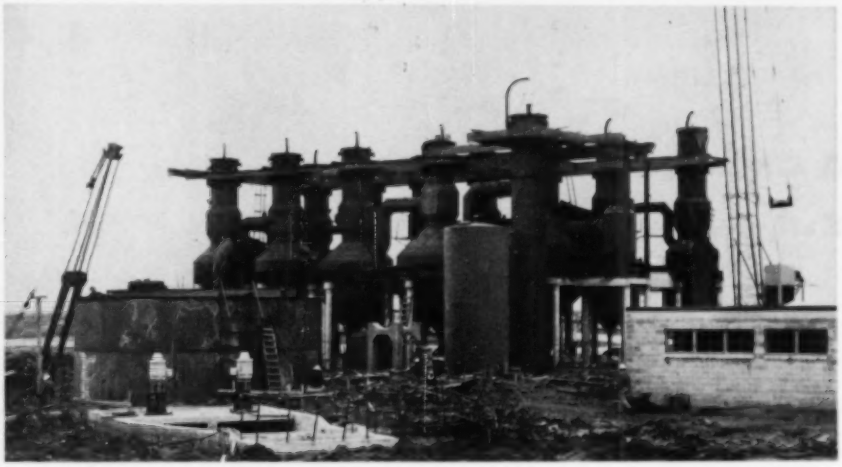
Golden yellow will soon replace the dull gray and midnight blue hues on more than 2,000 vehicles belonging to the New York City Sanitation Department. Commissioner Frank J. Lucia gave increased visibility and ready identification as the chief reasons.

Because these vehicles plow snow, haul refuse, and clean streets, they often perform at night when visibility is poor. The dull colors on the equipment allow the murky background to overshadow these units.

A six-week test of 12 brightly painted vehicles dramatically demonstrated the increase in "see-power" of the emergency and maintenance trucks, particularly during snow-plowing operations after dark. The test results were so conclusive that the department has announced its intention to repaint not only the 1,800 refuse and flusher trucks, but also its 334 mechanical sweepers. Department of Sanitation painters will switch their colors in conformity with the normal maintenance schedule. The entire change-over will require one year.

Flashing lights of a distinctive color may aid motorists and department personnel to identify snow-removal equipment from greater distances. Officials have not said whether they will choose the familiar blue or some other readily identified color.

Orange paint now denotes the snow loaders, graders and bull dozers. Present plans do not include repainting these units with the new golden yellow. ◄◄



The new sea-water conversion plant while it was under construction.

Water from the Sea at Freeport, Texas

Scheduled for completion in May 1961 is this sea-water conversion plant which will produce about 1,000,000 gpd at a cost of approximately $1 per 1,000 gallons. The Chicago Bridge and Iron Works is constructing the plant at Freeport, Texas, for the Office of Saline Water of the United States Department of the Interior. One of five experimental salt-water-conversion plants to be built for the Office of Saline Water, this one will use the long-tube vertical multiple-effect distillation process. ◄◄

Electronic Sentinel Monitors River Quality

A robot monitor will help guard water supplies for cities, inform industries on water characteristics, check conditions affecting recreation uses, speed alerts on accidental discharges, discover violations of pollution-control laws and reduce the cost of water and waste treatment. This electronic sentinel, developed by the Ohio River Valley Water Sanitation Commission (ORSANCO), assures that the Ohio Valley will be the first river basin in the world to be placed under continuous vigilance for water-quality protection.

The system consists of three units: an analyzer and telemeter transmitter, a telemeter receiver, and a transcriber. Analyzer units can be placed at various locations along the river. Water circulated through the unit comes in contact with detectors sensitive to changes in quality. These changes are measured electrically and relayed to ORSANCO headquarters where the receiver actuates a transcriber. The transcriber automatically types the information on a tabulation sheet for diagnosis of river conditions.

The system has been designed to accommodate measurement of ten different water-quality characteristics from as many as 40 locations throughout the Ohio Valley. At present, instruments have been perfected to monitor the following seven variables: dissolved oxygen, chloride, hydrogen-ion, specific conductance, oxidation-reduction potential, temperature and solar radiation. ◄◄

Water Meters Stretch Water Resources

Communities still using the flat-rate basis in their water-billing program should think twice before launching a capital expansion program, especially when faced with excessive water demands. Many cities have proved by actual experience that universal metering can eliminate the expense of a water-supply and filter-plant enlargement, or at least greatly reduce it.

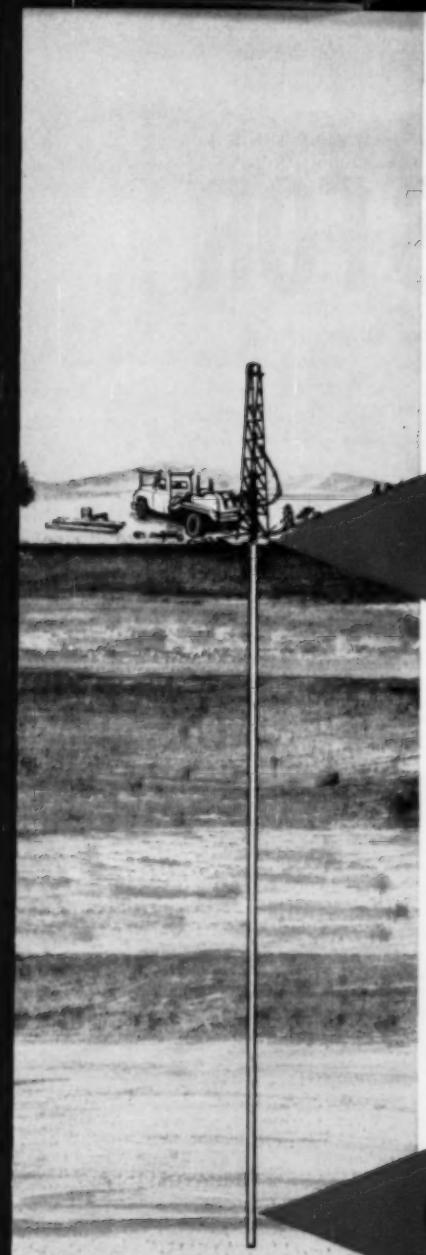
Carl K. Madison, vice-president of the Rockwell Manufacturing Company, recently cited these three instances:

Columbus, Texas, used more than 400,000,000 gallons of water in 1955 while using the flat-rate basis. In 1956, after metering, water usage amounted to only 198,000,000 gallons but revenues increased from $29,512.31 to $49,625.08.

Citizens of Hanover, Pa., used more than 738,000,000 gallons of water in 1953. Four years later, despite an increase in population, universal metering reduced the annual water use to 639,699,000 gallons.

By adopting a universal-metering program, Kingston, N. Y., found it possible to postpone capital improvements. Peak days registered in 1959 were 5.6 mgd and 6.33 mgd, compared to 8.13 mgd in 1957 and 7.44 mgd in 1958—records set prior to installation of meters.

Other cities found similar results. Fredericksburg, Va., delayed a capital-improvement program by about ten years through universal metering and did the job without antagonizing the public (THE AMERICAN CITY, June 1958, p. 151). One of the most recent cities to make the change was Salisbury, Md. Here metering delayed an expansion program for more than five years (THE AMERICAN CITY, March 1961, p. 85). ◄◄

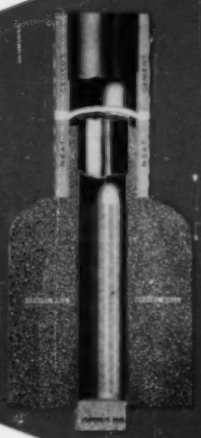


Layne
SINCE 1882

Layne Vertical Turbine Pumps are designed, engineered and manufactured by Layne in Memphis, Tennessee and nowhere else. Because pumping needs vary, there is a Layne pump for every pumping requirement—from 30 to 100,000 G.P.M. in sizes from 4 to 42 inches. Layne Pumps include Deep Well and Short Coupled (oil or water lubricated), Propeller, Mixed Flow, Regular and "In-Line" Submersible. For additional information write for bulletins 200-oil lubricated or 201-water lubricated.

has the only complete service that means

Water



The Layne Gravel Wall Well is an example of Layne experience, engineering and research. This gravel packing and 134 shutter screen employment affords larger screen openings, reduced friction, reduced draw down and pumping head. It increases specific capacity and makes for more effective retention of native sands. For additional information write for bulletin 900.

From top to bottom, you can depend on Layne for the most complete water service in the industry. This complete service provides undivided responsibility for the delivery of water . . . of the quality and in the quantity required. Over 75 years of *growing* service gives the skill and technical know-how which makes Layne First in the field of water. For additional information write for bulletin 10.

LAYNE
OFFERS COMPLETE
WATER SERVICE:

Initial Surveys • explorations • recommendations • site selection • foundation and soil-sampling • well drilling • well casing and screen • pump design, manufacture and installation • construction of water systems • maintenance and service • chemical treatment of water wells • water treatment—all backed by Layne Research.

Layne services do not replace, but coordinate with the services of consulting, plant and city engineers.

Layne SINCE 1882 — COMPLETE WATER SERVICE

LAYNE & BOWLER, INC., MEMPHIS

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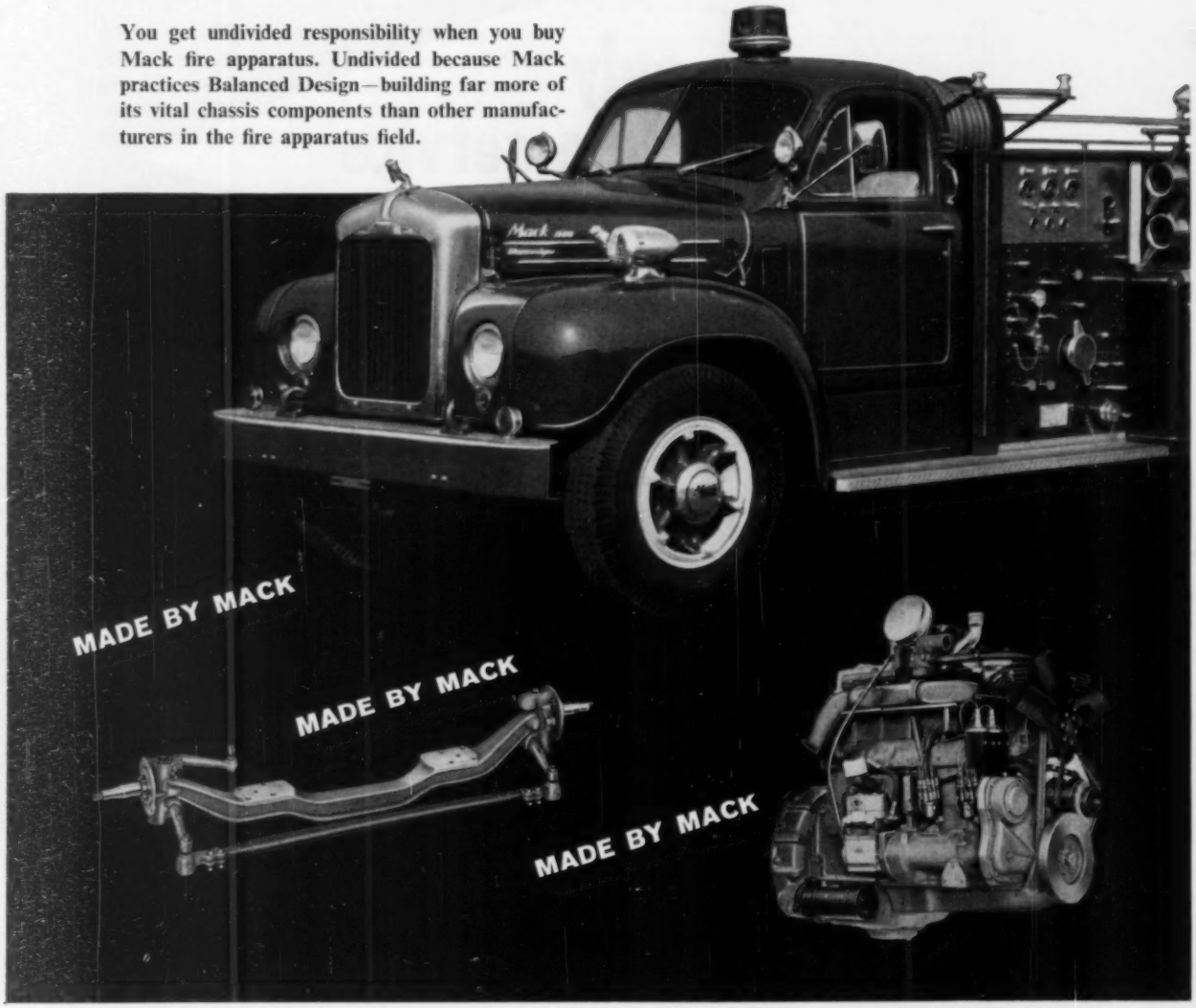
LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD

SALES REPRESENTATIVES IN MAJOR CITIES

Visit the Layne booth 213-215, AWWA CONVENTION, June 4-8, Cobo Hall, Detroit

Mack STANDS FOR UNDIVIDED RESPONSIBILITY

You get undivided responsibility when you buy Mack fire apparatus. Undivided because Mack practices Balanced Design—building far more of its vital chassis components than other manufacturers in the fire apparatus field.



But what of other manufacturers?

Without exception they buy many or all of their major chassis components from outside vendors . . . engines, clutches, transmissions, front and rear axles, and drives.

Too often this means split responsibility. Who guarantees the component? Who provides the service on it? Sometimes the apparatus manufacturer . . . sometimes the component manufacturer.

Is this good? Mack feels it is not. When you purchase Mack apparatus you must receive unqualified satisfaction. To insure this satisfaction, Mack insists on building far more of its vital components than other manufacturers. In this way Mack not only controls the quality of its components, but it can be sure its components will work in harmony . . . as an integrated unit.

You cannot have Balanced Design with mass produced parts—parts built to the lowest common denominator of a broad area of manufacturers.

Balanced Design is the exclusive Mack practice which assures you of the most efficient, trouble-free and best-performing apparatus. It is made possible only by manufacturing and matching our own components so exactly that they function as a completely integrated apparatus.

Thus Mack engines, headed by the famed Thermodyne® 707C, pump effortlessly hour after hour, day after day . . . transmissions match exactly the characteristics of Mack engines . . . Mack single or four-wheel-drive rear axles with PowerDivider give maximum traction under all road conditions . . . air or hydraulic brakes provide quick, dependable stopping ability.

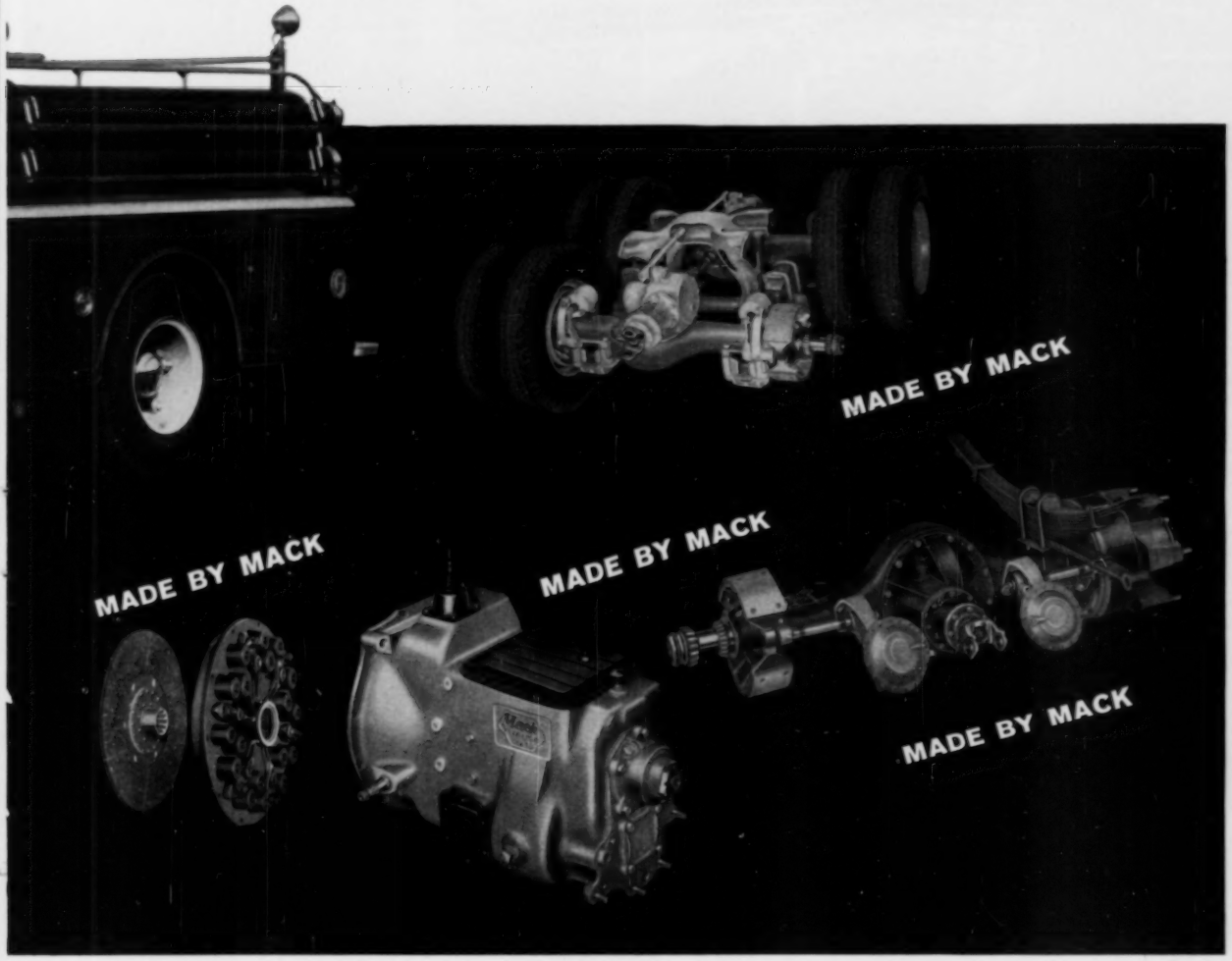
That's why Mack can assume undivided responsibility for the entire vehicle. We build it and we stand behind it 100%. Mack Fire Apparatus, Allentown, Pa. Mack Trucks of Canada, Ltd., Toronto, Ontario.

6212

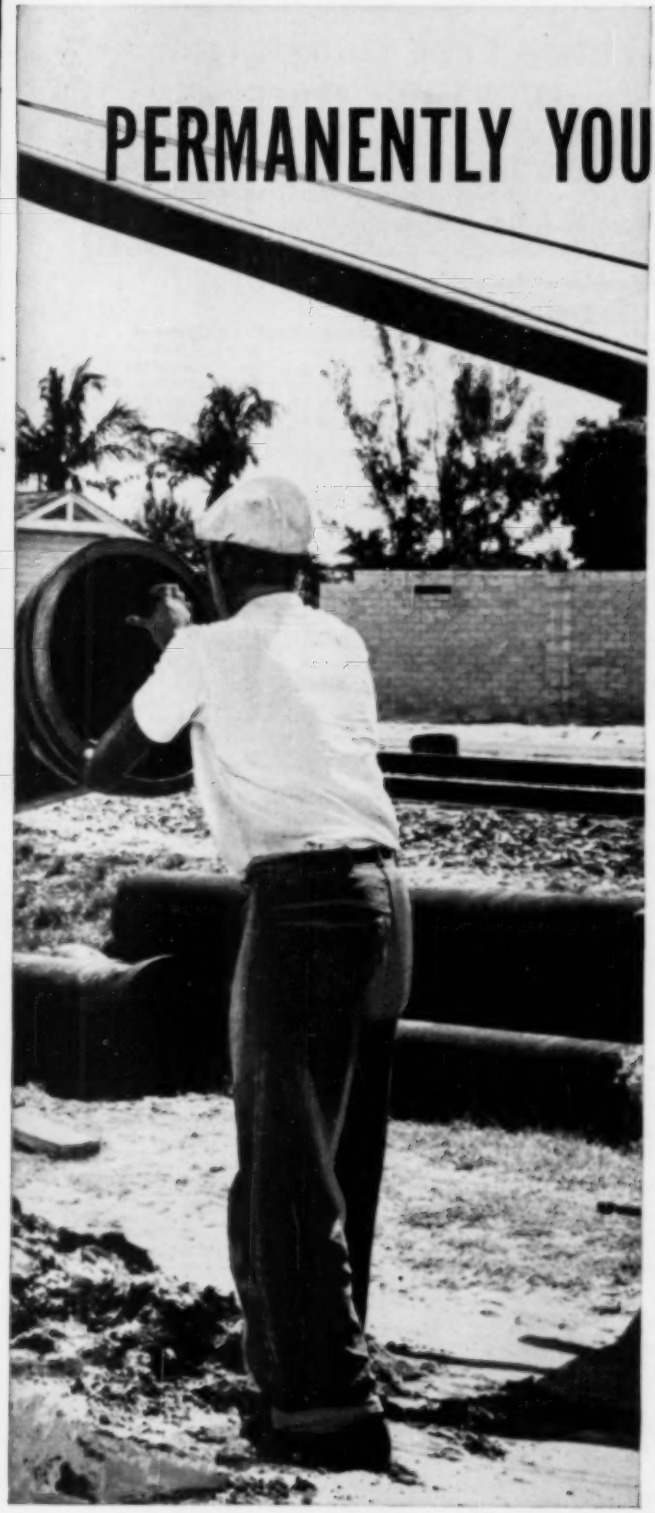
MACK

FIRST NAME FOR

FIRE APPARATUS



THE MARK OF THE 100-YEAR PIPE



PERMANENTLY YOURS: CAST IRON PIPE

Installed... it stays installed

One thing sure about cast iron pipe—once it's in the ground, it's there for keeps! Over 100 American utilities, having used cast iron pipe steadily for more than a century, can testify to that. And *modern* cast iron pipe gives you greater assurance than ever: great beam strength resists heavy surface traffic; tremendous load resistance absorbs even the most forceful pressures. In fact, when you select cast iron pipe, you can anticipate no major repairs in your water supply system for the next hundred years!

Cement-lined—it stays cement-lined

A smooth coat of cement lining along the inner wall helps prevent the formation of flow-reducing particles. No matter how strong the water is, cast iron pipe always assures a free, steady flow.

Joined—it stays joined

Bottle-tight, rubber-ring joints give you leakproof protection at the most vulnerable points of your system. Vibrations, surface traffic and washouts present no problem to cast iron pipe. Inherent ruggedness . . . built to perform under all adverse underground conditions . . . repair-free service for at least a century—all good reasons why your choice should be that of water utility experts everywhere. America's greatest water carrier: cast iron pipe.

Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 3440 Prudential Plaza, Chicago 1, Illinois

CAST IRON PIPE

Have You Problems?

These Free Booklets Will Help You

Check over these listings which will provide you with important up-to-date information on equipment and services that will assist you in solving municipal problems.

Write to address given or circle corresponding number on free post card on page 53.

2-Way Mobile Radio

565 Newark, N. J. has installed the largest major city transistorized 2-way radio system—275 RCA "LD" (low drain) 2-way radio units. For complete descriptive literature on these mobile radio units, write RADIO CORPORATION OF AMERICA, TELECOMMUNICATION CENTER, DEPT. U-4, MEADOW LANDS, PA.

More Horsepower in Less Space

566 *Brochure* No. 77-2 describes operating characteristics of the versatile, V-type, 4-cycle 12 or 16 cylinder supercharged LSV engines for driving generators, pumps and compressors. Write COOPER-BESSEMER CORP., MOUNT VERNON, OHIO.

Multi-Cell Incinerator Stokers

567 If you are interested in a stoker that provides flexibility of operation, progressive burning, economy and dependability, you'll want to learn more about these ruggedly constructed units. Detroit did and is now adding two more. Write FLYNN & EMERICH, BALTIMORE, MD.

Automatic Pump Control Liquid Level Indicator

568 *Bulletin* AC-100 announces and gives complete engineering information on VIS-A-TROL, a new automatic pump control and liquid level indicator designed for use with submersible sewage and sump pumps, vertical-type sewage and sump pumps and septic tank effluent pumps.

Trash Pumps for Any Dewatering Job

569 These new, self-priming centrifugals pump big volume and positively eject trash, channeling it into pump's discharge flow. Available in 3- and 4-inch sizes with capacities of 20,000 and 46,000 gph at 10 foot suction lift. Write JAEGER MACHINE CO., COLUMBUS 16, OHIO for "PosiJector" *Catalog* PT-1.

Water Service Products

570 For information on a quality line of corporation and curb stops and curb boxes, copper meter setters and raisers with stops and fittings required in connection with meter installations, and a lightweight tapping machine that gives the man in the ditch more working room, write HAYS MFG. CO., ERIE, PA.

Trenches Like the Devil

571 Self-propelled, with power boom control and reversible dirt conveyor, the Model L-12 Trench Devil digs deep and wide, at speeds up to 1200 feet per hour. Brochure gives specifications; write ARPS CORP., DEPT. AC, NEW HOLSTEIN, WIS.

Seepage-Proof Reservoirs

572 By writing to GULF SEAL CORP., division of BRAMBLE INDUSTRIES, MELROSE BLDG., HOUSTON 2, TEXAS, you will be able to obtain an up-to-date, fact filled *Engineering Brochure* (4th edition) on prefabricated asphalt linings for seepage-proofing new and existing municipal drinking water reservoirs.

Mobile Police Lab

573 Jacksonville, Fla. finds its Kombi crime detection laboratory to be a valuable, efficient, and economical leg of its police department. For details on this 4-wheeled "criminologist" and for "The Owner's Viewpoint," which gives facts and figures on Volkswagen truck performance, write VOLKSWAGEN OF AMERICA, ENGLEWOOD CLIFFS, N. J.

Protects the Elm Tree

574 A technical data report from CHEMICAL INSECTICIDE CORP., 30 WHITMAN AVE., METUCHEN, N. J., gives facts on a new one-shot liquid homogenized mist spray for complete control of dutch elm disease. Called MIST BLOC 26C-OF, it has no flash point, contains 70% less oil (minimizes plant injury).

Fire Fighting Products

575 In addition to acquainting you with the Rockwood line of products, this catalog will introduce you to new safe methods and economical devices with which to fight fires. For a copy, write ROCKWOOD SPRINKLER CO., 3002 HARLOW ST., WORCESTER 5, MASS.

Push-Type Cast Iron Pipe Joint

576 New brochure details advantages of American Fastite joint pipe, a double-sealing, single gasket-type cast iron pipe joint for water, sewage and other liquid service. Typical installations, assembly instructions, tables on pipe from 3" and 48" are included, along with recommended deflection tables. Write AMERICAN CAST IRON PIPE CO., BIRMINGHAM, ALA.

Portable Power

577 These portable electric plants (500-35,000 watts and up) provide crews with steady power for operating electric saws, grinders, drills, hammers, heaters, etc. They're available on dollies or trailers. Write KATOLIGHT CORP., BOX 891-25, MANKATO, MINN.

Minimizes Smoke, Water Damage

578 Municipal fire departments will find these light, pliable, mildew-resistant fire covers easy to handle in any temperature and effective in protecting property against smoke and water damage. Write FULTON COTTON MILLS, P. O. BOX 1726, ATLANTA 1, GA.

For Better Municipal Housekeeping

579 A 52-page brochure presents a host of products—from brushes and paint to weed killer—that help make municipal housekeeping more efficient. For a copy, write FENCEPAINTER DIVISION, 4911 S. RACINE AVE., CHICAGO 9, ILL.

Power Take-Off Blender-Pulverizer

580 Mix, pulverize, reclaim, aerate, add moisture to improve compaction, strengthen bases and sub-bases with additives, clear land—Unimix does all at low cost while working off tractor power in the 55-80 hp class. For details and/or demonstration, write INDUSTRIAL DIVISION, HOWARD ROTAVATOR CO., INC., HARVARD 2, ILL.

Water Treatment Equipment

581 *Bulletin* 315-12 is chock full of important, up-to-date information on Rex flocculation, clarification and sludge removal equipment, designed to provide your plant with maximum capacity at lower costs. Write CHAIN BELT CO., 4648 W. GREENFIELD AVE., MILWAUKEE 1, WIS.

Portable Pipe Cutters

582 The current complete-line catalog issued by THE E. H. WACHS CO., 1525 N. DAYTON ST., CHICAGO 22, ILL., will bring you up-to-date on this company's power and manual pipe cutters—2" to 72" capacity. Pow-R-Drive to open and close valves, etc. and a weld bevel grinder are also included.

Lighting— Weapon Against Crime

583 Numerous cities report significant success in their fight against crime, accidents and delinquency through the installation of effective street lighting. HOLOPHANE COMPANY, INC., STREET LIGHTING DEPT., NEWARK, OHIO, will send details on a "Fight-Danger-With-Light" Program.

Something New in Parking Garages

584 TIERPARK is a self-park ramp-type prefabricated pre-stressed concrete parking structure that lends itself to fast economical erection. For full facts on this new concept in parking garages, write TISHMAN RESEARCH CORP., TIERPARK DIV., 666 FIFTH AVE., NEW YORK 19, N. Y.

Water Analysis Kit

585 The DR (direct reading) Colorimeter makes colorimetric tests on water and sewage, precisely and rapidly. It's supplied with 40 meter scales. The many new procedures of which it is capable are included in the new 72-page *Methods Manual*, 3rd edition. Write HACH CO., AMES, IA.

Precise Surveying Instrument

586 *Brochure* K604 supplies complete information on the DKM2, a 1-second theodolite for 2nd to 4th order triangulation, traversing, big engineering, and construction surveys. For copy, write KERN INSTRUMENTS, INC., 120 GRAND ST., WHITE PLAINS, N. Y.

Heated Asphalt Rollers

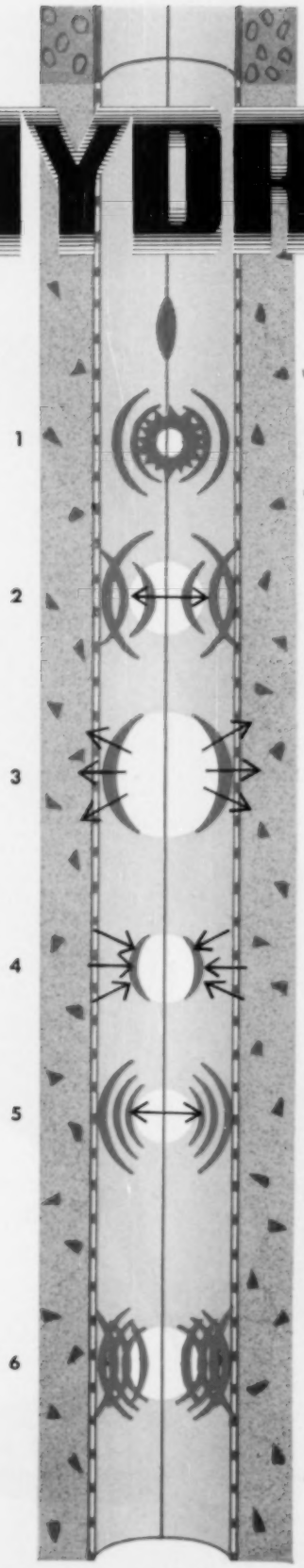
587 City and county street maintenance crews will want to review the current catalog on motorized and manual Hotterolls, which are used for trimming up to obstructions and for large and small plots, road patching and rolling driveways. For copy, write L. B. WHITE CO., INC., ONALASKA, WIS.

Modular Waterfront Facilities

588 A new 12-page brochure gives details on pier styles, accessory equipment and suggestions for waterfront facility design. "Piers for Camps, Municipalities, Resorts" is available from STANDARD STEEL PRODUCTS MFG. CO., 2836 SOUTH 16TH ST., MILWAUKEE 15, WIS.

(See page 45 for more Bulletins)

HYDRO-SONIC



CLEANS WELL SCREENS . . . WITHOUT PULLING THE PUMP

Amazing results are being obtained by water well owners who use Halliburton's exclusive HYDRO-SONIC water well redevelopment process. The HYDRO-SONIC treatment uses the controlled energy of underwater sonic shock waves to vibrate and help rid well screens of plugging materials which keep water from your well. The entire HYDRO-SONIC job may be performed without pulling the pump, if there is sufficient clearance between pump and well casing . . . requiring only a few minutes for what may give a water well many years of new life. Here is how HYDRO-SONIC works: (1) the charge explodes; (2) the shock waves move out; (3) the gas bubble expands; (4) water pressure compresses the bubble; (5) the cycle starts over again; and (6) the shock wave repeats itself several times.

If rejuvenation is what your well needs, contact a Halliburton HYDRO-SONIC man *today!*

HALLIBURTON is also your *most experienced source* of these other water well services:

- CASING PATCH — helps repair casing leaks with plastic patches while casing is in place.
- SQUEEZE CEMENTING — helps shut-off unwanted water.
- ACIDIZING — helps enlarge flow channels in limestone formations.
- HYDRAULIC FRACTURING — fast growing technique of increasing flow channels in sand formations.

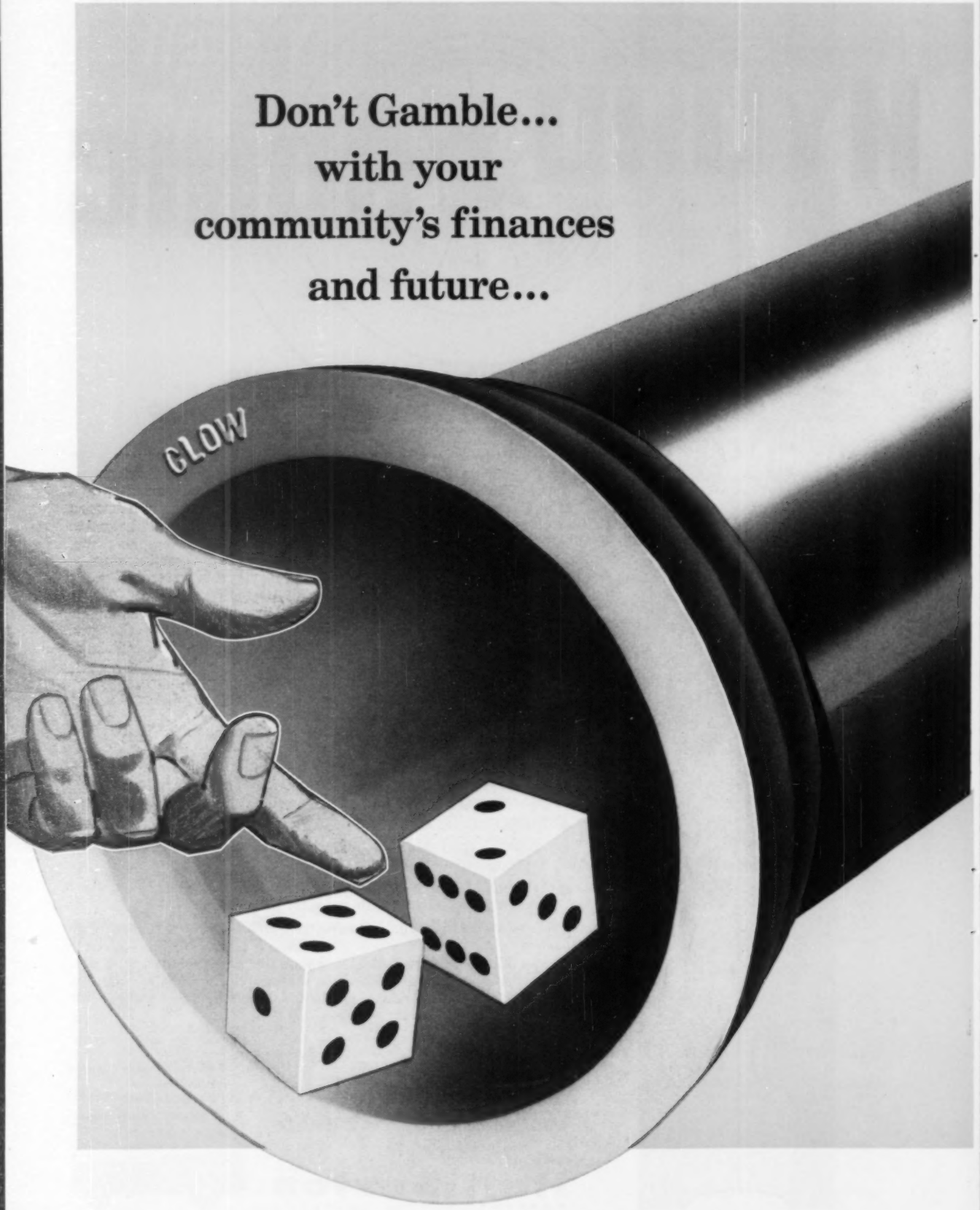
These services are available to you, your drilling contractor, or pump dealer.

Have a Halliburton man discuss your water well problems with you. From the early planning through the completion of your well, his guidance can mean greater yields and longer trouble-free life for your underground water supply.

WATER WELL SERVICES

Dedicated through research and performance to better service for America's water wells

Halliburton
COMPANY · DUNCAN, OKLAHOMA


Don't Gamble...
with your
community's finances
and future...
GLOW

you KNOW
CLOW
cast iron pipe
will last over 100 years

Can you risk the high cost of buying substitutes "at a price"? CLOW cast iron pipe assures dependable water service...now and for the future. The first cost is the *last* cost. Only tough, rugged cast iron pipe combines proven long life, trouble-free service, and sustained high-carrying capacity at low cost. Can you afford to buy less? Before you buy, let us prove to you that CLOW cast iron pipe is the best value for your job.

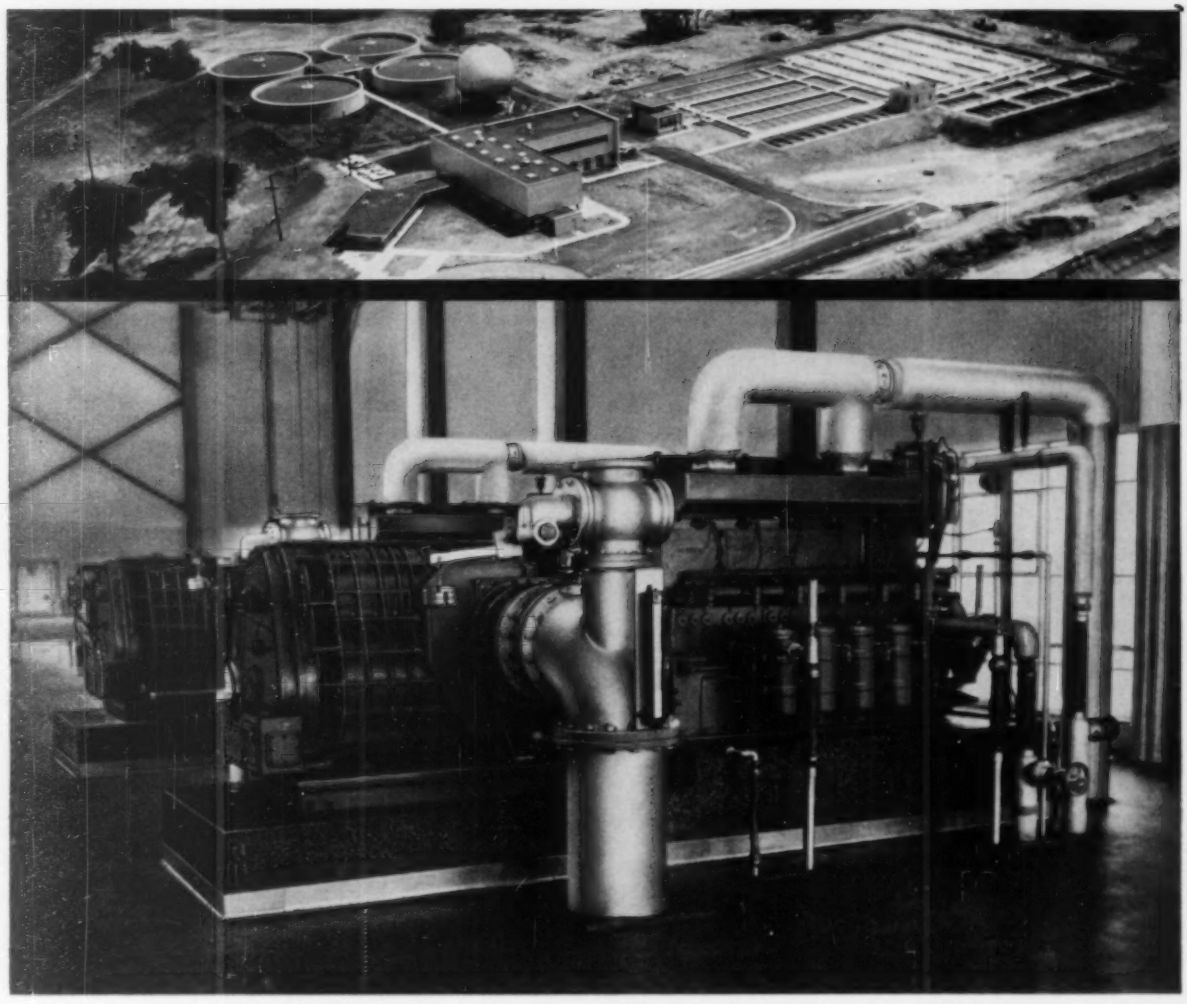
CLOW manufactures a complete line of cast iron pipe, fittings, valves, fire hydrants and piping specialties for every waterworks installation. Write or call today.

CLOW CAST IRON PIPE

JAMES B. CLOW & SONS, INC.
201-299 North Talman Avenue, Chicago 80, Illinois

Subsidiaries:
Eddy Valve Company, Waterford, N.Y.
Iowa Valve Company, Oskaloosa, Iowa

Clow Cast Iron Pipe Plants are located at
BENSENVILLE, ILLINOIS • BIRMINGHAM, ALABAMA • COSHOCTON, OHIO



WHITE/SUPERIOR ENGINES OPERATE ON FREE SEWAGE GAS

at Hamilton, Ohio's 12,000,000 gallon per day sewage treatment plant

Two White Superior 6G-825 gas engines at Hamilton, Ohio's new activated sludge type sewage treatment plant are saving taxpayers thousands of dollars yearly. Engines operate on free sewage gas produced in the plant digesters. The Superiors, each rated 300 bhp at 690 rpm, drive blowers with a total capacity of 14,000 cfm to aerate sewage. Heat from engine cooling water also helps heat the buildings.

Superiors also feature outstanding design simplicity, with fewer moving parts than comparable power units. Maintenance and repair costs are minimized, and replacement parts are seldom needed, even after extremely long periods of operation.

White Superior covers every municipal power requirement with a complete line of dependable diesel, dual-fuel and gas engines, 190 to 2150 hp, or 150 to 1500 kw. *Write for literature today!* WHITE DIESEL ENGINE DIVISION, Springfield, Ohio.

White DIESEL | Superior ENGINES

White Diesel

FREE catalogs

You will find of interest

Write to address given or circle corresponding number on free post card on page 53.

Municipal Incinerator Stoker

589 *Bulletin* 701 gives full details and specifications for a reciprocating grate incinerator stoker designed for municipal and industrial incinerators. It is factory-assembled for shipment in modular units. Write DETROIT STOKER CO., DIV. OF UNITED INDUSTRIAL CORP., MONROE, MICH.

Plastic Pipe for Municipal Services

590 Engineered pipe of Marlex plastic resins is non-corroding, lightweight, strong, costs less to handle. It is seeing use in municipal water and sewer systems and in swimming pools. For descriptive and technical literature, write PHILLIPS CHEMICAL CO., BARTLESVILLE, OKLA.

Hear This! Hear This!

591 FANON ELECTRONIC INDUSTRIES, INC., 439 FRELINGHUYSEN AVE., NEWARK, N. J., presents its line of dependable intercommunication and sound equipment in a new 6-page catalog. P. A. amplifiers for continuous-duty operation, transistorized mobile amplifiers, and megaphones included.

Hazard Warning Devices

592 Among the safety products described and detailed in the current catalog from THE TOLEDO PRESSED STEEL CO., 397 PHILLIPS AVE., TOLEDO 12, OHIO are kerosene signal torches, electric flashers and folding steel barricades.

Water Works Fittings

593 Cast iron water works fittings—fabricated piping, bell spigot, short body and mechanical joint, Fluid-Tite, Ring Tite and flange fittings—are detailed in a current catalog available from TRINITY VALLEY IRON AND STEEL CO., P. O. BOX 2388, FORT WORTH, TEXAS.

Erases Traffic Lines

594 Want old traffic markings removed in a whiz—permanently and at low cost and without damage to concrete surface beneath? Then request illustrated bulletin and performance data on the Traffic Line Eraser. Write G. H. TENNANT CO., 751D N. LILAC DRIVE, MINNEAPOLIS 22, MINN.

Cost Analysis Booklet

595 . . . analyzes the operating and maintenance of costs of Cushman Truckster used in various applications, such as parking meter patrol, golf course maintenance, etc. It is based on interviews with users in all sections of U. S. A. Write CUSHMAN MOTORS, 1023 N. 21ST, LINCOLN, NEBR.

Turns 'Em On and Off

596 AMERICAN ELECTRIC MFG. CORP., 3271 CHELSEA, MEMPHIS 12, TENN., reports a low silhouette and reduced overall size for its new Model 8000-1 cadmium cell photoelectric street light control. Turn-on is 1 foot-candle; turn-off, 3 to 4 foot-candles.

Saves 156 Manhours per Week

597 . . . cut maintenance costs by one-third, does it with the the Load-Packer 600, reports a Kansas City refuse collection contractor. Literature from GAR WOOD INDUSTRIES, INC., WAYNE, MICH., tells about the features that make the Load-Packer so economical to operate.

Leaves No Litter

598 Vac-Master lives up to its name, vacuums a 60-inch path, mulches leaves, breaks up debris. For specification sheet on this 2-wheeled unit, write GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

Got to Dig a Ditch?

599 Want to dig it deep? Want to dig it fast? Then why not send for the new bulletin on ladder-type Trenchliners, available from PARSONS CO., a division of KOEHRING CO., NEWTON, IA.

Lighting Standards

600 By writing to the UNION METAL MFG. CO., CANTON, OHIO, you can obtain complete design and specification data on Monotube poles for street lighting, highway lighting and floodlighting.

Record Keeping's a Snap

601 . . . when done the Flexoline reference system way, reports ACME VISIBLE RECORDS, INC., 8605 W. ALLVIEW DRIVE, CROZET, VA., which will send descriptive, detailed information on this time and money-saving system.

Criminal Detection Devices Employing Photography

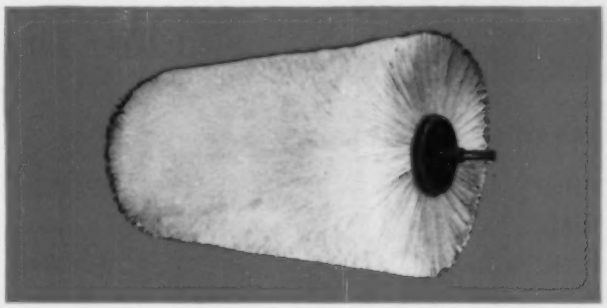
602 . . . is a 24-page pamphlet which describes several types of detection, or surveillance, systems particularly suitable for use with photographic equipment. All systems have been used in police investigations and proven their practicality. For *Pamphlet* No. M-8, write SALES SERVICE DIV., EASTMAN KODAK CO., ROCHESTER 4, N. Y.

(See page 46 for more Bulletins)

ROAD-TESTED Prostran®

Saves Jersey Town* Up To 35%

YOU CAN SAVE THIS KIND OF MONEY ON YOUR STREET SWEEPING OPERATION, TOO!



YOU GET THESE BENEFITS WITH PROSTRAN-POLYPROPYLENE STREET SWEEPING FIBRE

- Superior To Any Natural Or Synthetic Broom Material
- Reduced Cost Per Sweeping Mile
- Longer Lasting Use-Life
- Excellent Sweeping Efficiency
- Minimum "Down-Time" for Repeated Broom Filling
- Toughness and Superior Abrasive Action
- Excellent Flex-Life for Ideal Bend Recovery
- Excellent Resistance to Chemicals, Solvents, Greases, Oils and Many Common Acids
- Lightest Weight Of All Synthetics – More Bulk Per Pound
- Heavy Duty Efficiency and Clean Sweeping
- Top Performance Under All Weather Conditions

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MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 53.

For More Effective Weed Control

603 Urox is a new, highly potent nonselective herbicide that destroys weeds and brush for as long as 8 to 18 months; Urab, a new soil penetrating weed, brush and weed-tree killer. Both are supplied in liquid or granular form. Write GENERAL CHEMICAL DIV., ALLIED CHEMICAL, 40 RECTOR ST., NEW YORK 6, N. Y.

Aluminum Outdoor Lighting Products

604 Street lighting standards, floodlighting standards, traffic signal poles brackets are discussed in terms of construction, maintenance, ease of installation and strength in the current catalog from HAPCO, DIVISION OF HUBBARD AND COMPANY, PITTSBURGH 1, PA.

Rate Controllers for Filter Plants

605 *Bulletin* 951 reports on a rate controller whose only moving part is a rubber throttling element in the throat section. Available in 4-inch to 24-inch sizes and used for effluent and wash service, it operates pneumatically. Write SIMPLEX VALVE AND METER CO., DEPT. MI-41, 7 E. ORANGE ST., LANCASTER, PA.

"Flexible" CAM DRIVE UNIRODER

An entirely new principle providing Non-Slip Rod Drive!

NO ROLLERS TO SCORE OR BURN

ANOTHER "Flexible" FIRST!

PAT. PENDING

UniRodeR Model SUR-1 rods sewers and is ideal for threading cable for bucket machines

CAMS GRIP TIGHTER UNDER LOAD

Revolutionary! Traveling cams push or pull the continuous rod, rotating with it in either direction. The heavier the load the tighter the cams grip the rod. NO FRICTION ROLLERS TO SCORE OR BURN. Exclusive Safety Overload Clutch protects pipe, machine and rod. Simplified mechanism and fewer working parts mean less maintenance than any other continuous rodder!

- 8 Speeds Forward or Reverse
- Positive Non-Slip Cam Drive
- Capacity up to 2000 ft.
- Tool Box, 3 cu. ft. Capacity
- All Moving Parts Enclosed
- Safety Overload Clutch
- Footage Meter
- Uses From ¼ to ⅜-in. Rod
- 9 hp. with Self Starter

FLEXIBLE INC.

415 S. Zangs Blvd., Dallas, Texas

Factories: Los Angeles, Calif. and Lima, Ohio

Concrete Parking Areas

606 The 16-page illustrated booklet, "Concrete Pavement Design for Parking Areas," discusses the proper design of concrete parking area pavements and includes suggested specifications. Available from PORTLAND CEMENT ASSOCIATION, 33 W. GRAND AVE., CHICAGO 10, ILL.

Pipe for Your City's Water System

607 *Catalog* No. 54 will tell you just about everything you'll want to know about centrifugally cast APCO cast iron pipe with the Altite joint, available in 3-inch through 24-inch sizes and in long lengths. Write ALABAMA PIPE CO., ANNISTON, ALA.

Your Cleaning Problems

608 A 12-page comic-style booklet tells how steam cleaning cuts maintenance costs, diagrams basic element of steam cleaner, explains differences between steam vapor cleaners and hydraulic pressure cleaner, charts cost of cleaning with different size cleaners. Write MALSBARY MFG. CO., 845 92ND AVE., OAKLAND 3, CALIF.

"Picture Book" on Landscaping

609 The reader of this 16-page booklet is given a step-by-step view of an operation that turned a raw "problem" site into an attractive landscaped area. Booklet's available from TRACTOR AND IMPLEMENT DIV., FORD MOTOR CO., 2500 E. MAPLE RD., BIRMINGHAM, MICH.

For Neater Grounds Keeping

610 Attractive trash receptacles that invite use and promote good sanitation feature polyvinyl liner, self-closing top doors, and are 44 inches high and either 16 or 20 inches square. They're called Litter-Tainers. D. J. ALEXANDER CORP., 2944 E. VENANGO ST., PHILADELPHIA 34, PA. will supply details.

Rotates 360°, Live-Booms Up to 9,000 Pounds

611 HOLAN CORP., 400 W. 150TH ST., CLEVELAND 35, OHIO is manufacturing the first center-mounted derrick for the utility field that can be operated from a rotating crow's-nest. It is the "7700" Hydraulic Derrick. Descriptive literature available.

Adequate Highway Signing

612 *Bulletin* OLP-1023 discusses criteria for determining proper highway sign lighting, describes how to calculate required illumination levels, proper mounting of lighting fixtures, and photometric data for luminaires. Write GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

New Guide for Traffic

613 A new data sheet gives specifications, features and installation information on new Model 400 Flex-O-Guides, which are used for parking area control, traffic channeling and guiding. Write FLEXIBLE SAFETY ZONING CO., INC., 2341 S. LARAMIE AVE., CICERO 50, ILL.

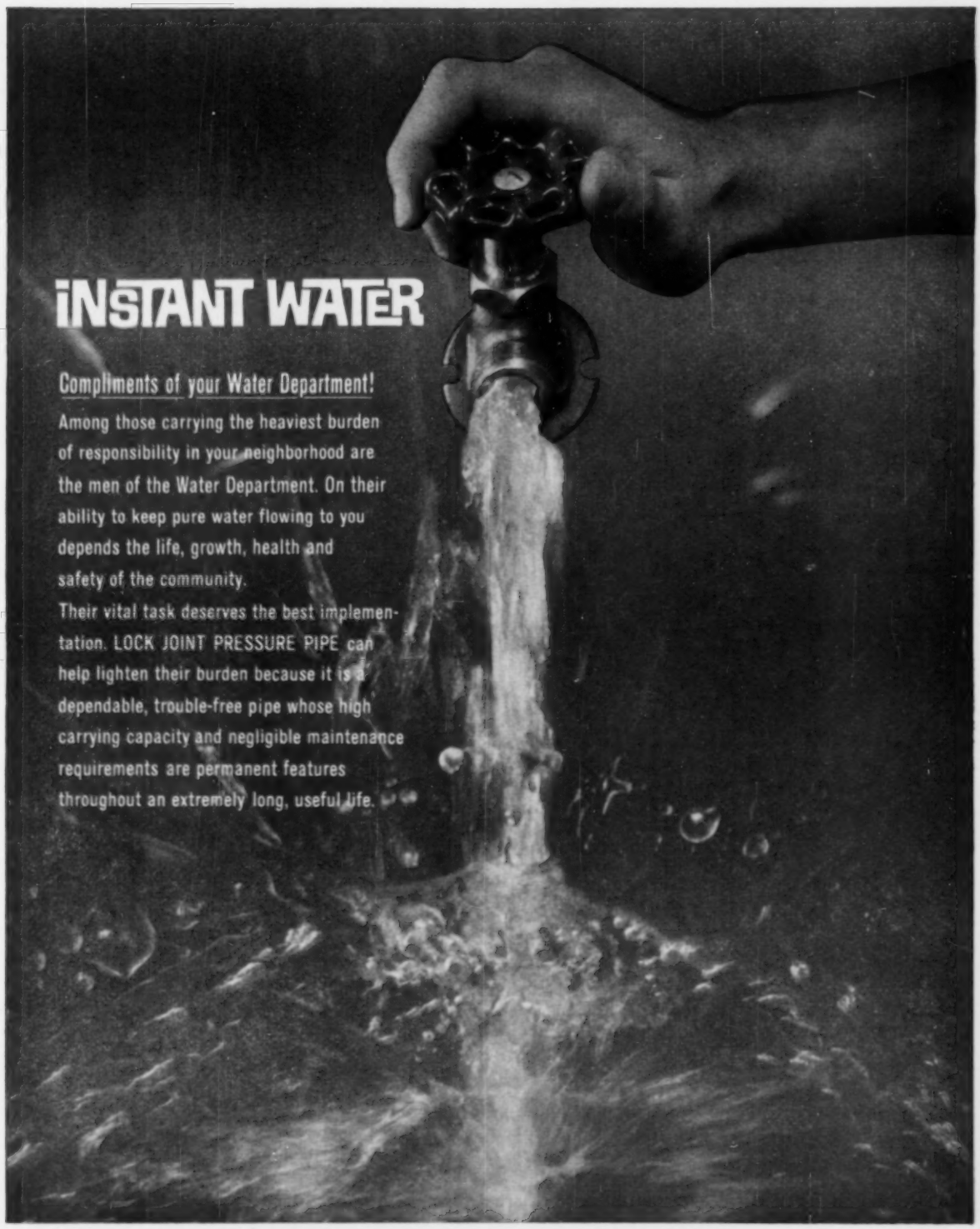
Extra Heavy-Duty Mower

614 The "Super 60" riding mower cuts lawns and rough, weedy areas with ease. Features include three 20-inch vacuum lift blades and ground speed independent of blade speed. For descriptive literature, write PENNINGTON MFG. CO., ADDISON, ILL.

Valves and Hydrants

615 *Catalog* No. 16 will acquaint you with the full line of TRAVERSE CITY IRON WORKS fire hydrants, indicator valves and posts, check valves, gate valves, pipe and fittings, valves and accessories for water and sewage treatment plants. Write P. O. BOX 348, TRAVERSE CITY, MICH.

(See page 48 for more Bulletins)


INSTANT WATER
Compliments of your Water Department!
Among those carrying the heaviest burden of responsibility in your neighborhood are the men of the Water Department. On their ability to keep pure water flowing to you depends the life, growth, health and safety of the community.
Their vital task deserves the best implementation. LOCK JOINT PRESSURE PIPE can help lighten their burden because it is a dependable, trouble-free pipe whose high carrying capacity and negligible maintenance requirements are permanent features throughout an extremely long, useful life.

LOCK JOINT PIPE CO.

East Orange, New Jersey

Member of The American Concrete Pipe Association and The American Concrete Pressure Pipe Association

Sales Office: Chicago, Ill. · Columbia, S. C. · Denver, Col. · Detroit, Mich. · Hartford, Conn. · Kansas City, Kan. · Perryman, Md. · St. Paul, Minn. · Winter Park, Fla.

Pressure • Water • Sewer • **REINFORCED CONCRETE PIPE** • Culvert • Subaqueous

Use Northern Gravel for Rapid Sand Filter

Here is the Winnetka, Illinois Filter Plant. They report having used filter sand and gravel purchased from the Northern Gravel Company for several years and are very pleased with the uniform quality they have always received.

Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 47 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

Northern Gravel Company

Box 307 **Muscatine, Iowa** **Phone: AMherst 3-2711**

CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 53.

Pressure-Operated Sump Controls

616 *Bulletin* RPS furnishes application information, engineering data, mechanical and electric specifications for the RPS Roto-Trol, used to control pumps discharging from sewage wetwells or submerged water reservoirs. Write HEALY-RUFF CO., 833 HAMPDEN AVE., ST. PAUL 14, MINN.

Plastic-Lined Coolers

617 The world's largest manufacturer of portable water coolers has announced four new plastic-lined models, available in 2, 3, 5 and 10-gallon sizes and designed for either hot or cold liquids. For catalog information, write IGLOO CORP., P. O. BOX 7185, MEMPHIS 18, TENN.

High Pressure Butterfly Valves

618 These new water works valves are designed for pressures to 150 psi, in sizes from 4 inches through 72 inches. They incorporate many new design features that contribute to longer operating life and ease of operation. Write HENRY PRATT CO., 319 W. VAN BUREN ST., CHICAGO 7, ILL.

Nuclear Soil Test Method

619 TESTLAB CORP., 3398 N. MILWAUKEE AVE., CHICAGO 41, ILL., announces an improved system for determining percent moisture and density of soil by nuclear methods. AEC license not required and at least 5 to 10 tests can be run in the same period of time required to run one conventional test.

Street Name Assemblies

620 These tough, durable, weather resistant and highly legible street name assemblies are made of zinc-coated Bonderized steel with baked enamel finish and are embossed for extra strength and rigidity. Write THE MIRO-FLEX CO., INC., 1824 E. SECOND ST., WICHITA 14, KANS. for literature and facts on its traffic control sign line.

Concrete Repair Products

621 Data sheets on a new repair-replacement product report that Topkote LP/Epoxy Concrete puts pot holed, broken, shattered and spalled portland cement concrete pavements back in service in less than 24 hours. Write TOPKOTE PRODUCTS CO., 645 CUSTER AVE., EVANSTON, ILL.

Street and Park Baskets

622 These litter receptacles invite the public to keep its community clean. They are hot dip galvanized after fabrication and have a "message plaque." Write NORWICH WIRE WORKS, INC., 161 STATE ST., NORWICH, N. Y.

Water Works Valve Operators

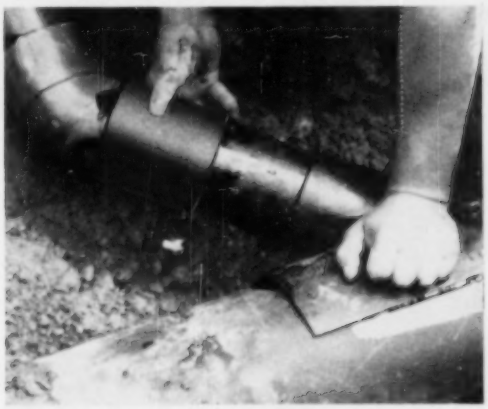
623 Truck-mounted, hydraulic valve operators that provide fast, safe control of 10-inch to 60-inch valves, portable gate operators and electric valve operators are subjects of the current catalog offered by PAYNE DEAN & CO., CLINTON, CONN.

Factory-Jointed Clay Pipe

624 This pipe is ideally suited for difficult installation conditions, such as high-water-table areas. It's available with three kinds of tight precision-cast joints. For full information, write THE ROBINSON CLAY PRODUCT CO., AKRON 9, OHIO.

(See page 52 for more Bulletins)

Needham, Mass., Installs FIRST Plastic Sewer Main in U.S.A.



"Evanite stops infiltration and exfiltration, has a root-proof joint,"

says Sewer Superintendent

E. A. Symonds, Needham Superintendent of Sewers, selected Evanite Plastic Sewer Main in 8-inch diameters, plus plastic fittings and 4-inch plastic house connections, after extensive tests established Evanite as impervious to attack by chemicals found in sewage and industrial wastes. It was also determined that Evanite's non-absorptive quality, as compared with existing sewer pipe materials, eliminates percolation through the walls, and has adequate crushing strength for sewer main service under city streets.

Ease of installation also was a factor . . . Evanite can be cut with a saw and rejoined without further machining or working.

Six months after installation, the Evanite system was checked for deformation and leakage. It was found to be free from infiltration, completely straight and round. Mr. Symonds concluded, "In our opinion, the solvent welded joint used with Evanite Plastic Sewer Pipe is the most fool-proof joint on the market today. Evanite Plastic Main has demonstrated in service all the advantages claimed for it, and we expect to use it again on future projects in the Town of Needham."

Evanite conforms to F.H.A. specifications for plastic drain and sewer pipe fittings.*

Evanite comes in standard 10-foot lengths . . . longer lengths available . . . up to 15 inches in diameter. Because of its lightness (2.5 lbs. per foot in 8-inch diam.), it is easy to carry, easy to install and handle. Write for additional information.

Evanite Plastic Pipe is guaranteed for 50 years.

TEE · WYE · 90° ELL · 45° CURVE · COUPLING · INCREASER · Adapter to Cast Iron or Clay Pipe

Evanite PLASTIC COMPANY

Evanite is the only producer of large diameter plastic sewer mains.

DIVISION OF THE EVANS PIPE COMPANY

LEESBURG, FLORIDA TELEPHONE: ST 7-1321 CARROLLTON, OHIO TELEPHONE: 68

One of the nation's largest producers of face brick, clay pipe, clay flue lining, wall coping, and related construction materials . . . with over 50 years of faster, friendlier service.

DO IT RIGHT WITH EVANITE *SEWER, GAS, WATER, IRRIGATION* PIPE

EVA-160-115A

EVEN THE ROOF WORKS HARD! Look what a Kombi's roof can handle—ladder, platform, portable generator, spotlight, loudspeaker, radio antenna and, quite often, a policeman, too. The Kombi can carry a whopping 1,786 lbs. of payload. And it does it for less.

Jacksonville's 4-wheeled criminologist: The Volkswagen Kombi

Mobile police lab is money-saver for city, too

A Volkswagen Kombi Station Wagon is both "legs" and laboratory for Mobile Crime Unit #1 of the Jacksonville, Florida, Police Department. Fingerprint technician F. D. Boree tells how the VW helps the law enforcers do their jobs:

"The department made a good choice when it got the Kombi. It's perfect for our work. It's maneuverable, durable and so well designed we were able to adapt almost every inch, both inside and out, for police work. We've made a complete crime lab out of the interior."

It might be added that the city provides gas, oil and maintenance for police vehicles, so the Kombi's day in, day out economy helps to conserve Jacksonville's taxpayers' dollars.

The Jacksonville Police Department's experience with Volkswagen is repeated over and over again by VW Truck users in all 50 states. There are now more than 110,000 Volkswagen Trucks in the U.S., at work in government and industry. Volkswagen is the advanced truck idea that has proven itself on the road for the past 11 years.

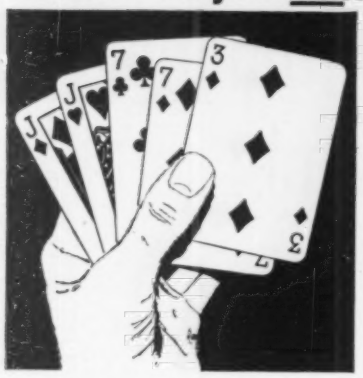
Is your city or town ready for a VW Truck? It is if it wants a truck (or a fleet of trucks) that costs less to buy, less to service, and less to operate. The suggested retail price (East Coast Port of Entry) of the standard VW Kombi Station Wagon, without seats, is $1,995 (West Coast, $2,215). To make the right decision, talk to an Authorized Volkswagen Dealer soon. Ask for a demonstration. And get your free copy of the 60-page illustrated booklet—"The Owner's Viewpoint." It documents with facts and figures VW Truck performance and owner experience in a wide variety of businesses. It shows what you can expect to get from Volkswagen Trucks, too. Why not pick it up today?

©1961 Volkswagen of America, Inc.

VW ANSWERS CALL FOR CONVENIENCE! Note the big double side doors on the Kombi. They're 47.2" by 46", allow easy access to equipment. The powerful police radio is run by the VW electrical system, with occasional aid from a generator on the roof. Note split front seats—one of many useful VW optional features. Kombi has 170 cubic feet of cargo space, 43.1 square feet of floor space.

A KOMBI LEADS MANY LIVES! Here, it's a "crime lab on wheels" for the police unit as they take tire prints. But the Kombi can be anything *you* want. It combines the features of a station wagon and a panel truck. With all 3 seats in, it becomes a 9-passenger transport; with one seat removed, it carries 6 people and 1,336 pounds of cargo. Its brawny rear engine is air-cooled: Never needs water or antifreeze.

POKER? Play to win!



How would you play this hand?

Not strong, but play it. Two times in three you'll be high hand before the draw. Raise to drive out pairs. Then stand pat. It's 12 to 1 you couldn't fill anyhow, and it helps set up later, better hands.

Here's a sure winner from FORD:

New Ford 4000 Heavy Duty Fork Lift! Strength, stability and big-tire traction for fast, safe materials handling on rough terrain.

4000 lbs. rated load at 24" load center. Conforms to or exceeds all Fork Lift Industry stability and capacity recommendations.

Five basic models with 10' to 21' lift heights. Two and three-stage telescoping masts with unusually low collapsed heights. Especially built for rough terrain. Its mobility and low collapsed mast height adapt it for work in many areas with low doorways and narrow aisles.

Get details from your Ford Tractor Dealer, or write:

Tractor and Implement Division
Ford Motor Company
Birmingham, Michigan

Ford
TRACTORS
EQUIPMENT

"Better Municipal Services and Reduced Costs

...may be readily possible by using the improved municipal equipment offered below"

Write to address given or circle corresponding number on free post card on page 53.

Kills Psychoda in Trickling Filters

625 Literature offered by GLENN CHEMICAL CO., INC., 2735 N. ASHLAND AVE., CHICAGO 14, ILL., will prove valuable reading for sewage treatment plant personnel. It tells about Formula R. S. C. with new inhibitory factor for Psychoda flies in trickling filters, including those resistant to older insecticides.

Traffic Guardrails

626 The Flex-Beam guardrail has been designed to protect traffic on expressways. It reflects light from all angles, and is highly visible around the clock. Shape and strength are said to help guide vehicles parallel to rail in case of impact. Write ARMCO DRAINAGE & METAL PRODUCTS, INC., 5811 CURTIS ST., MIDDLETOWN, OHIO.

Turn a Large Valve?

627 Operate a tapping machine or auger? Pull wire through long lengths of conduit? Winch? Operate sluice gates? The handy portable No. 68 Power Drive and its adapters do all and more. For full information, write TOLEDO PIPE THREADING MACHINE CO., P. O. BOX 1678, TOLEDO 3, OHIO.

Highway Life Lines

628 Tells the story of traffic paint and methods of testing, formulation and use. The 16-minute, 16mm color-sound film is available from the ADVERTISING DEPT., HERCULES POWDER CO., WILMINGTON 99, DEL.

Rechargeable Batteries

629 These nickel cadmium batteries perform reliably over a wide temperature range. They prove an excellent power source for stand-by power, emergency lighting, supervisory control, stationary engine, cranking. Write NICAD DIV., GOULD-NATIONAL BATTERIES, INC., ST. PAUL 1, MINN.

Self-Propelled Rollers

630 Highlighted in current catalog literature from ROSCO MFG. CO., ROLCOR DIV., 3118 SNELLING AVE., MINNEAPOLIS 6, MINN., are a 2-ton vibrating roller designed for soil and asphalt compaction, a 2-ton static roller equipped with front and rear spray bar, and a 1-ton Rollpac.

Hold on to That Digester Gas

631 Digester gas from sewage purification is a valuable fuel that can appreciably cut treatment costs, reports R. D. COLE MFG. CO., NEWNAN, GA., whose current catalog will acquaint you with a dependable line of gas holders for the recovery of this gas for fuel.

Water Works Valves

632 *Bulletin* 611 discloses the features, characteristics and specifications of the Kennedy line of water works valves; a new *Maintenance Manual* details their upkeep. For copies, write KENNEDY VALVE MFG. CO., ELMIRA, N. Y.

Mercury Lamps

633 In this 12-page illustrated booklet SYLVANIA LIGHTING PRODUCTS, 60 BOSTON ST., SALEM, MASS., explains why mercury lamps are today's most effective street and outdoor lighting source. Includes technical data and general operating characteristics on Sylvania mercury lamps.

Cut Overhead Maintenance Down to Size

634 Want speed, safety, operating flexibility and reduced costs for overhead utility jobs? Then why not investigate what the all-hydraulic HI-RANGER mobile aerial tower can do. Write MOBILE AERIAL TOWERS, INC., 1730 N. HARRISON ST., FORT WAYNE, IND.

Aluminum Waterfront Equipment

635 An 8-page catalog illustrates and gives details on a line of new all-aluminum waterfront equipment that includes docks, ramps, floats, stairs, marinas. For a copy, write ALUMIDOCK, DIVISION OF METALLIC LADDER MFG. CORP., RANDOLPH, N. Y.

Playground Equipment

636 Safe, colorful and body-building, this playground equipment will also attract, entertain and stimulate the imagination of children. For descriptive literature on Jack & Jill, Earn-A-Slide, climbers, whirls and other steel and/or fiber glass fun-creating units, write MIRACLE EQUIPMENT CO., GRINNELL, IA.

2-Color Portable Traffic Line Striper

637 A new development from WALD INDUSTRIES, INC., HUNTINGTON, PA. is the Tandem Tanker, which converts a standard Model 16 Reflecto-Liner into a two-color machine or doubles its paint capacity for two-gun single color operation. Literature available.

Sickle Bar Mowers

638 New literature is available on three self-propelled sickle bar mowers, manufactured by JARI PRODUCTS, INC., 2970 PILLSBURY AVE. S., MINNEAPOLIS 8, MINN., and designed for heavy-duty use. Typical applications, specifications and construction features included.

For Safer Bridge Crossings

639 New "CK" bridge decking, successfully field-tested for 4 years, eliminates weaving of cars on open mesh steel floors. Descriptive literature available from IRVING SUBWAY GRATING CO., INC., 5030 27TH ST., LONG ISLAND CITY, N. Y.

Center-Mounted Rotary

640 Woods Model 62 cuts a 5-foot swath, mows 3 acres per hour, fits Ford, Ferguson and IHC 240 tractors. For catalog giving construction and design features and specifications, write WOOD BROTHERS MFG. CO., 20105 S. 4TH ST., OREGON, ILL.

Dependable Municipal Power

641 Literature from WHITE DIESEL ENGINE DIVISION, SPRINGFIELD, OHIO points out the features of the Superior line of diesel, dual-fuel and gas engines, shows how these 190-2150 hp or 150-1500 kw units cover every municipal power requirement.

Sewer Cleaning Equipment

642 Catalog gives facts on Maxi-Power sewer cleaning units, designed to restore full flow of sewer; describes sewer cleaning brushes, buckets, ferrets, flushing bags, rods. Write TURBINE SEWER MACHINE CO., division of CHAS. H. STEHLING CO., 1303 N. FOURTH ST., MILWAUKEE 12, WIS.

(See page 56 for more Bulletins)

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 28[illegible], SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

Reader's Service Dept.

WHAT'S BUGGIN' YOU, MAN?

To THE AMERICAN CITY's Catalog Supply Department:
Please send me literature on items numbered as follows, starting on page 40

565	577	589	601	613	625	637	649	661	673	685	697	709	721
566	578	590	602	614	626	638	650	662	674	686	698	710	722
567	579	591	603	615	627	639	651	663	675	687	699	711	
568	580	592	604	616	628	640	652	664	676	688	700	712	
569	581	593	605	617	629	641	653	665	677	689	701	713	
570	582	594	606	618	630	642	654	666	678	690	702	714	
571	583	595	607	619	631	643	655	667	679	691	703	715	
572	584	596	608	620	632	644	656	668	680	692	704	716	
573	585	597	609	621	633	645	657	669	681	693	705	717	
574	586	598	610	622	634	646	658	670	682	694	706	718	
575	587	599	611	623	635	647	659	671	683	695	707	719	
576	588	600	612	624	636	648	660	672	684	696	708	720	

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

Title:.....

Address:.....

..... 5-61

A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:
Please send me literature on items numbered as follows, starting on page 40

565	577	589	601	613	625	637	649	661	673	685	697	709	721
566	578	590	602	614	626	638	650	662	674	686	698	710	722
567	579	591	603	615	627	639	651	663	675	687	699	711	
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569	581	593	605	617	629	641	653	665	677	689	701	713	
570	582	594	606	618	630	642	654	666	678	690	702	714	
571	583	595	607	619	631	643	655	667	679	691	703	715	
572	584	596	608	620	632	644	656	668	680	692	704	716	
573	585	597	609	621	633	645	657	669	681	693	705	717	
574	586	598	610	622	634	646	658	670	682	694	706	718	
575	587	599	611	623	635	647	659	671	683	695	707	719	
576	588	600	612	624	636	648	660	672	684	696	708	720	

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

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A Listing of Your Business Connection is Important

GET IN TUNE WITH THE TIMES

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

Reader's Service Dept.

Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.

OTTAWA
STRATO-TOWER

For trimming around wires, Marshfield crews find their 45′ Strato-Tower reudces tree mutilation, eliminates ladders, cuts accidents and does the job quicker—yet saves taxpayers over $3000 a year in time and labor.

"Our STRATO-TOWER paid for itself in six months IN SAVINGS ALONE" ... reports Marshfield, Wisconsin utility

"After we charge off everything on this machine, the taxpayers are more than $3000 better off each year because we've got an Ottawa Strato-Tower," says an official of the Marshfield (Wis.) Electric and Water Department. "We use it for trimming trees, hot-line clamps, stringing wire, street lamp maintenance, transformer installation, Christmas decorations ... anything. In fact, we couldn't do without it."

For most *any* high job you have, an Ottawa Strato-Tower will do the work faster, cheaper and safer. Its unique single-lever control lets the man in the basket raise himself to the best, most efficient working position ... puts him in hard-to-reach places to get the "impossible" jobs done quickly. And, Strato-Tower is safe ... has *6 to 1* structural safety factor. Fiberglas buckets and booms isolate crews from high voltage—insulated booms protect on low voltage. Hydraulic outriggers level the truck during operations. With working heights from 35′ to 109′, there's a Strato-Tower to reach your exact requirements.

See what the Strato-Tower offers you in speed, safety and economy. Like Marshfield Electric and Water Department, you'll be enthusiastic. Your Ottawa Distributor can give you the full details, or write today to **Equipment Division, Young Spring & Wire Corporation, Bowling Green, Ohio.**

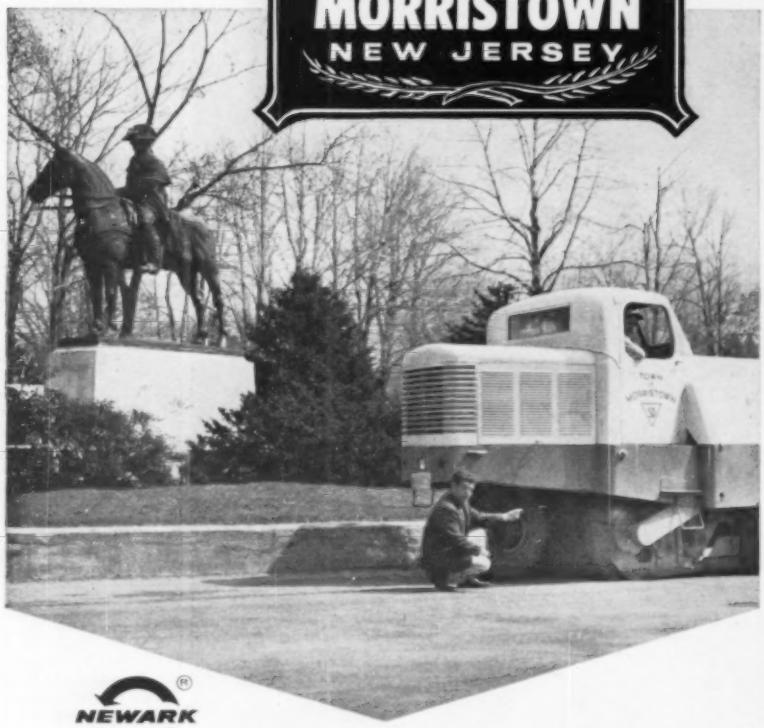
YOUNG SPRING & WIRE CORPORATION

EQUIPMENT DIVISION
YOUNG SPRING & WIRE CORPORATION
MANUFACTURERS OF
DAYBROOK TRUCK EQUIPMENT **OTTAWA** CONSTRUCTION EQUIPMENT

DANLINE SWEEPS THE NATION

A Cleaner City Today

MORRISTOWN NEW JERSEY



NEWARK®

Historic Morristown abounds in landmarks of the past and present. Washington's Headquarters, Fort Nonsense, Jockey Hollow National Park and the famous Seeing Eye attract a steady flow of tourists. Presenting a clean city to the visiting throngs is important so Morristown turned to Danline. Mr. Anthony Cutter, Supt. of Streets, has been using Danline for years and has found its average brush life to be 2500 sweeping miles. He says, "Besides a long life, Danline does an excellent job of keeping our streets clean. I estimate, based on a replacement brush cost of $244.00 and a life of 2500 miles, that it costs us about 10¢ per mile swept." Give your city this same clean sweep — put Danline to work.

59-60

Leadership Proved Through Performance!

NEWARK BRUSH COMPANY

260 MICHIGAN AVE., KENILWORTH, N. J.

MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 53.

Parking-Meter Facts

643 Data-filled catalog from DUAL PARKING METER CO., subsidiary of ROCKWELL MFG. CO., 400 N. LEXINGTON AVE., PITTSBURGH 8, PA., tells why Twin-Duals are 23% lower in initial cost, 50% lower in installation cost, provide 50% more maneuvering space for the motorist approaching or leaving a parking space.

Geared to Your City's Water Works Needs

644 By writing to the JAMES B. CLOW & SONS, INC., 201-299 N. TALMAN AVE., CHICAGO 80, ILL., you can obtain catalog information on the company's complete line of cast iron pipe, fittings, valves, fire hydrants and piping specialties for every water works installation.

Rubber Gaskets

645 The new Tylox brochure reports the facts, tells why Tylox rubber gaskets assure economy, safety and longevity to sewer line projects and discusses why they reduce installation costs. Write HAMILTON KENT MFG. CO., 427 W. GRANT ST., KENT, OHIO.

It Eats Tree Stumps

646 This power-driven stump-eater economically chews stumps to below ground-level. Why not ask F. F. LOFGREN, SALES MGR., DAVEY TREE EXPERT CO., KENT 16, OHIO, for complete information and details on it and a complete tree service.

Introduces New Luminaire

647 *Bulletin* 128 gives complete data on the new Pemco Suburba-Lite for residential streets, parkways, recreation areas, parking areas and for incandescent lamps or with internal ballast for mercury lamps. Write PHILADELPHIA ELECTRICAL & MFG. CO., 1200-36 N. 31ST, P. O. BOX 8359, PHILADELPHIA 21, PA.

Cathodic Protection Systems

648 . . . to preserve water storage tanks, pipelines, filter beds, flocculators, clarifiers, grit and sludge collectors, etc. from electrolytic corrosion are discussed in the current catalog offered by THE HARCO CORP., 4589 E. 71ST ST., CLEVELAND 25, OHIO.

Protects Blueprints

649 To fill the need for an inexpensive file for blueprints, rolled maps, and drawings, SCOTT-RICE CO., 610 S. MAIN ST., TULSA 19, OKLA., has developed the "Scottie," a heavy-guage steel bin (22" x 9" x 27⅜") in baked enamel finish and fitted with 40 heavy-duty cardboard tubes (2" diam., 36" long).

Pipeline Coatings

650 *Bulletin* T-204 describes the complete family of Bitumastic Primers and Enamels for pipeline protection now available from TAR PRODUCTS DIV. KOPPERS CO., INC., PITTSBURGH 19, PA. A color-coded enamel selector is included as an aid to selecting the correct system for specific ranges of field conditions.

Municipal Signs

651 Street signs, golf course markers, municipal building plaques and letters, historical markers and other municipal identifications are the subject of *Brochure* "AC," available from LAKE SHORE MARKERS INC., 654 W. 19TH ST., BOX 59, ERIE, PA.

(See page 58 for more Bulletins)

Does your fair city smell only fair?

Shocking question? Perhaps! Yet it is one that deserves the attention of every municipal official concerned with noxious and offensive organic fumes and odors originating from industrial installations in his community.

Health-harmful fumes and offending odors *can* be eliminated efficiently and economically by Catalytic Combustion systems.

Many progressive, community-minded industries in hundreds of cities have installed Catalytic Combustion equipment . . . and they have quickly and effectively stopped the discharge of noxious fumes to the atmosphere. Others can accomplish the same results, and at costs entirely within reason.

If your city is concerned with the serious and growing problem of industrial air pollution, a request will bring our new descriptive brochure. It describes what industry in your area can do about air pollution. Write "Municipal Engineer, Department C."

CATALYTIC COMBUSTION CORPORATION

4725 Fourteenth Street • Detroit 8, Michigan

A SUBSIDIARY OF UNIVERSAL OIL PRODUCTS COMPANY

you can't

PATCH IT!

Some things can't be patched, let's face it. Among them are a bond issue and a sewer line. If either fails, you start all over again—and that's expensive.

If your city puts inferior sewer pipe in the ground—and gases and acids ruin it—somebody's got to dig it up and replace it. That costs you—the taxpayer—a whole lot more money than putting down lifetime pipe in the first place.

Putting in an inferior sewer pipe is a real penny-wise, pound-foolish idea, anyway. The big cost of putting in a sewer line is tearing up streets and digging the ditch, NOT the pipe. Actually the pipe—the best, lifetime pipe—averages about only 12 percent of the cost of the job.

Lifetime pipe is Vitrified Clay Pipe. It can save you untold tax dollars in the long run.

No, you can't patch a sewer line any more than you can a bond issue. But you can patch a hole in your money pocket—and the time to patch it is before you've lost a lot of money. That means demanding lifetime pipe—Vitrified Clay Pipe—for the next sewer line in your community.

Public health is important. Your city may need to upgrade its sewer lines.

Find out how by writing to:

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1028 Connecticut Ave., Washington, D. C.

Please send me full details on the new factory-made compression joints on Clay Pipe.

(name)

(company)

(street address)

(city and state)

B-4C23 AC

COMPRESSION SEALED, VITRIFIED
CLAY PIPE
IMPERVIOUS
THE STANDARD in SANITARY SEWERS

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1028 Connecticut Avenue, N.W.
Washington 6, D. C.

FREE catalogs

Write to address given or circle corresponding number on free post card on page 53.

Plastic Sewer Main and Fittings

652 Needham, Mass., the first community in the U. S. A. to install plastic sewer main, plus plastic fittings and house connections, reports that tests show their Evanite system to be root-proof and able to stop infiltration and exfiltration. For details, write EVANITE PLASTIC CO., DIVISION OF THE EVANS PIPE CO., CARROLLTON, OHIO.

Guide Traffic with Ease

653 Lightweight, easily-adaptable Safe-T-Cones have wide acceptance by governmental traffic authorities for guiding and channeling traffic, emergency blockades, utility repairs and line painting. Available in three sizes. For full facts, write RADIATOR SPECIALTY CO., CHARLOTTE, N. C.

Measures Distance at a Walk

654 This measuring wheel records up to 100,000 feet automatically, keeps accumulated total always in view, shows inches, fractions of an inch, and tenths of a foot. It's one of a variety of models to fit your needs. Write ROLATAPE, INC., 1741 14TH ST., SANTA MONICA 2, CALIF.

Propane-Fired Asphalt Rollers

655 Designed with street patching crews in mind, the new 600-pound Hot Roll Model MP26 makes rapid work of everything from utility cuts to large area overlays. It produces both compaction of asphalt in excess of a 5-ton tandem roller plus a smooth water-tight surface. Write ELLIS DISTRIBUTING CO., BOX 168, LIBERTY, MO.

Ends Costly Trenching

656 *Catalog* WED-61 divulges the facts about the horizontal Wonder Earth Drill, shows why it ends costly trenching and filling on pipe laying jobs, explains how it can be set up and operated by one man to make holes from 2 to 12 inches in diameter and up to 200 feet long. Write CONSTRUCTION MACHINERY CO., WATERLOO, IA.

Age-Graded Playground Equipment

657 Sculptured tree houses, dome-shaped shells, alphabet letter fences, swaying spider-web structures of cast reinforced concrete and cast aluminum anodized in color are some of the play pieces to be discovered in 43-page *Catalog* B. Write PLAYGROUND CORPORATION OF AMERICA, 730 FIFTH AVENUE, NEW YORK 19, N. Y.

Earthmoving, Mechanics School

658 This 24-page booklet will acquaint you with the curriculum of the GREER TECHNICAL INSTITUTE, BOX 368, BRAIDWOOD, ILL., to which numerous municipalities send equipment operators to learn how to properly operate and maintain bulldozers, scrapers, hoes and draglines, tractors, etc.

Outdoor Lighting Control Equipment

659 Among the products fully described in the current catalog offered by SUNSWITCH DIVISION, RIPLEY COMPANY, INC., MIDDLETOWN, CONN., are tubeless photoelectric lighting controls, universal mounting bracket and an adapter for converting Form 110 luminaires from a straight prong to a twist-lock receptacle.

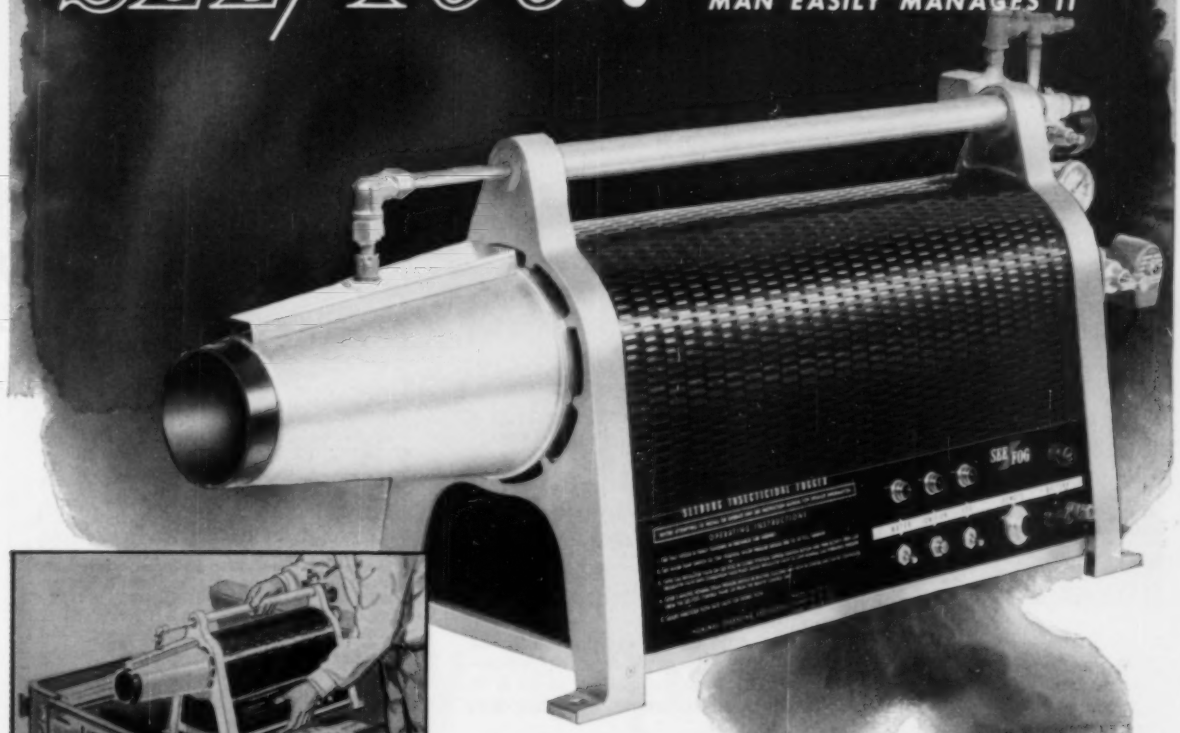
(See page 60 for more Bulletins)

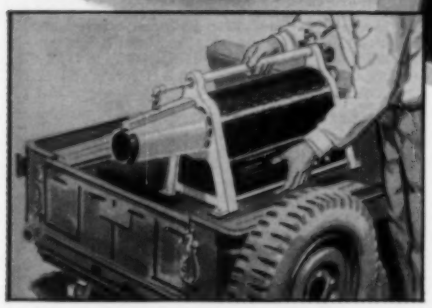
FOGGING!

THE PROVED EFFICIENT WAY TO CONTROL INSECT PESTS

SEEBURG SEE/FOG!

HIGH-CAPACITY APPLICATOR SO COMPACT THAT ONE MAN EASILY MANAGES IT





- Unit weighs only 68 pounds.
- Dimensions only 36 x 12 x 15 inches.
- Only one moving part.
- Easily put into operation in minutes.
- Produces effective fog in less than 3 minutes after starting.
- Calibrated flow-meter for accurate measurement in gph of insecticide.
- Remote fog control for driver of the fogging vehicle.
- Output as high as that of larger, much heavier units—capacity variable to 45 gph.
- Priced for low original cost.
- Designed for low operating cost.

THE EFFICIENT, LOW-COST UNIT FOR USE IN SANITATION AND AREA CONTROL OF MOSQUITOES, FLIES, AND OTHER PESTS

Wherever *persons* live or gather, and are pestered or endangered by insects—

Wherever *insects* congregate, to the detriment of public health and personal comfort—

SEE/FOG's fast, efficient fogging delivers economical insect kill and control. Quickly and easily mounted on truck, trailer, Jeep, station wagon, or boat. One-man operation.

For further information write Dept. A, SEE/FOG Division, The Seeburg Sales Corporation, 1500 No. Dayton St., Chicago 22.

ANOTHER QUALITY PRODUCT OF SEEBURG

Sold and serviced by Seeburg franchised distributors in principal cities.

FREE catalogs

Write to address given or circle corresponding number on free post card on page 53.

Tri-Fuel Engines

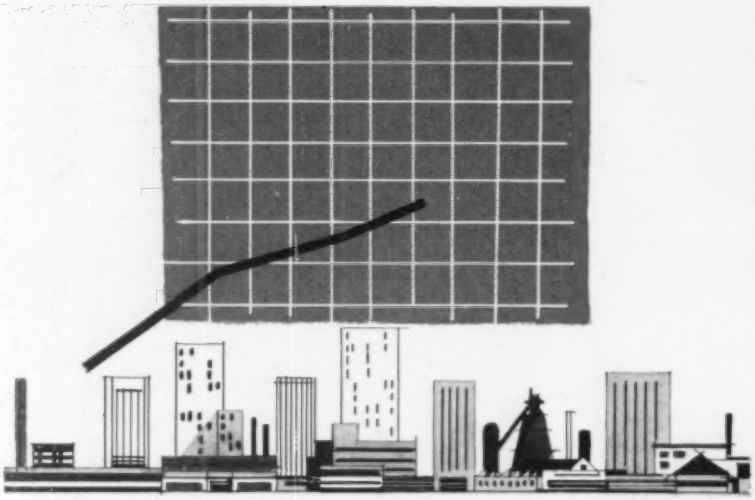
660 The Toledo, Ohio sewage treatment plant handles 135 mgd and finds its main sources of power and processed air deliver low-cost, dependable power. For complete data on turbocharged, tri-fuel (diesel, dual fuel, spark ignition) heavy-duty engines, write ENTERPRISE ENGINE & MACHINERY CO., 550 85TH AVE., OAKLAND 21, CALIF.

Kills Weeds, Discourages New Growth

661 Veg-Out, a non-toxic, non-selective, non-flammable, free-flowing liquid developed as a safe solution to weed control problems, effectively kills brush, poison ivy, quack grass and other undesirable vegetation. Write NATIONAL CHEMSEARCH CORP., 2417 COMMERCE, DALLAS 26, TEXAS.

Tapping Sleeves, Valves and Machines

662 *Bulletin* T-54, offered by THE A. P. SMITH MFG. CO., EAST ORANGE, N. J., details how these tapping machines are used with tapping sleeves, hat flanges, saddles and tapping valves to make pressure connections to cast iron, cement-asbestos, steel and reinforced concrete piping.



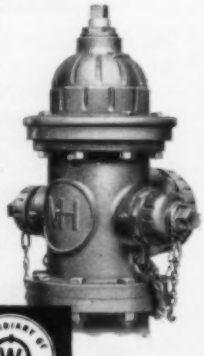
The Future

It appears that the demand for M & H valves and hydrants will increase in the "60s", for four reasons: (1) Rapidly increasing population, (2) growing industrial economy, (3) superior quality of M & H products, (4) need of improvements and expansion of water and sewerage facilities.

Although over 17,000 water distribution systems have been built in about 75 years, in over 1,000 of them water consumption has recently been rationed. Engineers estimate that some 60% of all U. S. water supply systems now need major improvements. This situation could easily get worse instead of better due to rapidly increasing population – expected to be 227 million by 1975. A new American is born every 12 seconds or 7,500 new water consumers every day! The U. S. Department of Commerce estimates that in the next 20 years, water supply facilities will need to be doubled, costing approximately $41 billion.

That is going to take valves, hydrants and fittings. We lay no claims to sorcery or clairvoyance. We have no crystal ball, cannot tell the future. But with modesty and humility, we believe engineers will specify that a lot of those valves shall be M & H.

(No. 12 of a Series)



M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA
SUBSIDIARY OF WALWORTH

Traffic Control Bulletins

663 . . . available from EAGLE SIGNAL CO., DEPT. AC-561, MOLINE, ILL. *E*50: pretimed and actuated computer program system; *E*40: the Monotrol two-wire system of interconnection; *E*20: multidial local controller; *A*-20: complete line of signals and accessories; *F*10: complete line of actuated controllers and accessories.

Police Motorcycles

664 The new 12-page police brochure is sued by HARLEY-DAVIDSON MOTOR CO., DEPT. AC-5, MILWAUKEE 1, WIS., is packed with facts and features about the versatile, fast-striking, hard-hitting Harley-Davidson law enforcement and traffic control Police Solo and all-purpose Servi-Car.

Luminaire for Wide Roadways

665 The new OV-50 Silverliner for 700- and 1000-watt clear and color-corrected mercuries is specially designed for illuminating extra-wide roadways which have heavy traffic density. WESTINGHOUSE ELECTRIC CORP. LIGHTING DIV., EDGEWATER PARK, CLEVELAND, OHIO, reports it also has wide application in parking lots.

Wall-Mounted Chlorinizer

666 Model 845, a low-cost chlorinizer of compact design mixes chlorine gas with water and feeds the resultant solution. It's suited for sterilization of drinking and swimming pool water and sewage or waste treatment plant effluent. Write B-I-F INDUSTRIES, P. O. BOX 276, PROVIDENCE, R. I. for explanatory *Bulletin* Ref. No. 845.201-1.

Miniaturized Line Locator

667 Model W-3 is a new 4-pound precise, electronic locator for subsurface installations—transmission and distribution lines, cables, valves, boxes, buried structures under ground and in walls. Descriptive brochure gives specifications. Write WILKINSON PRODUCTS CO., 3987 CHEVY CHASE DRIVE, PASADENA 3, CALIF.

For Better Street Sweeping

668 Formula 9458 can help you do a more efficient street sweeping job. It makes water "wetter," loosens street dust and dirt, prolongs broom life, and even saves water. For details and free sample, write ZEP MFG. CORP., 1310 SEABOARD INDUSTRIAL BLVD., N. E., ATLANTA, GA.

Tractor-Air Compressor

669 Numerous engineering and design changes increase operating efficiency for the Le Roi 125 Tractair, a combination tractor and air compressor, which delivers 125 cfm of 100 psi air and moves at speeds up to 15 mph from job to job. Write for *Catalog* T-3 to LE ROI DIVISION WESTINGHOUSE AIR BRAKE CO., SIDNEY, OHIO.

Improved Fire Tanker

670 A new and improved fire tanker, especially built and outfitted to meet fire protection needs of small towns, is the feature of *Bulletin* A-429, available from BAUGHMAN MFG. CO., INC., JERSEYVILLE, ILL.

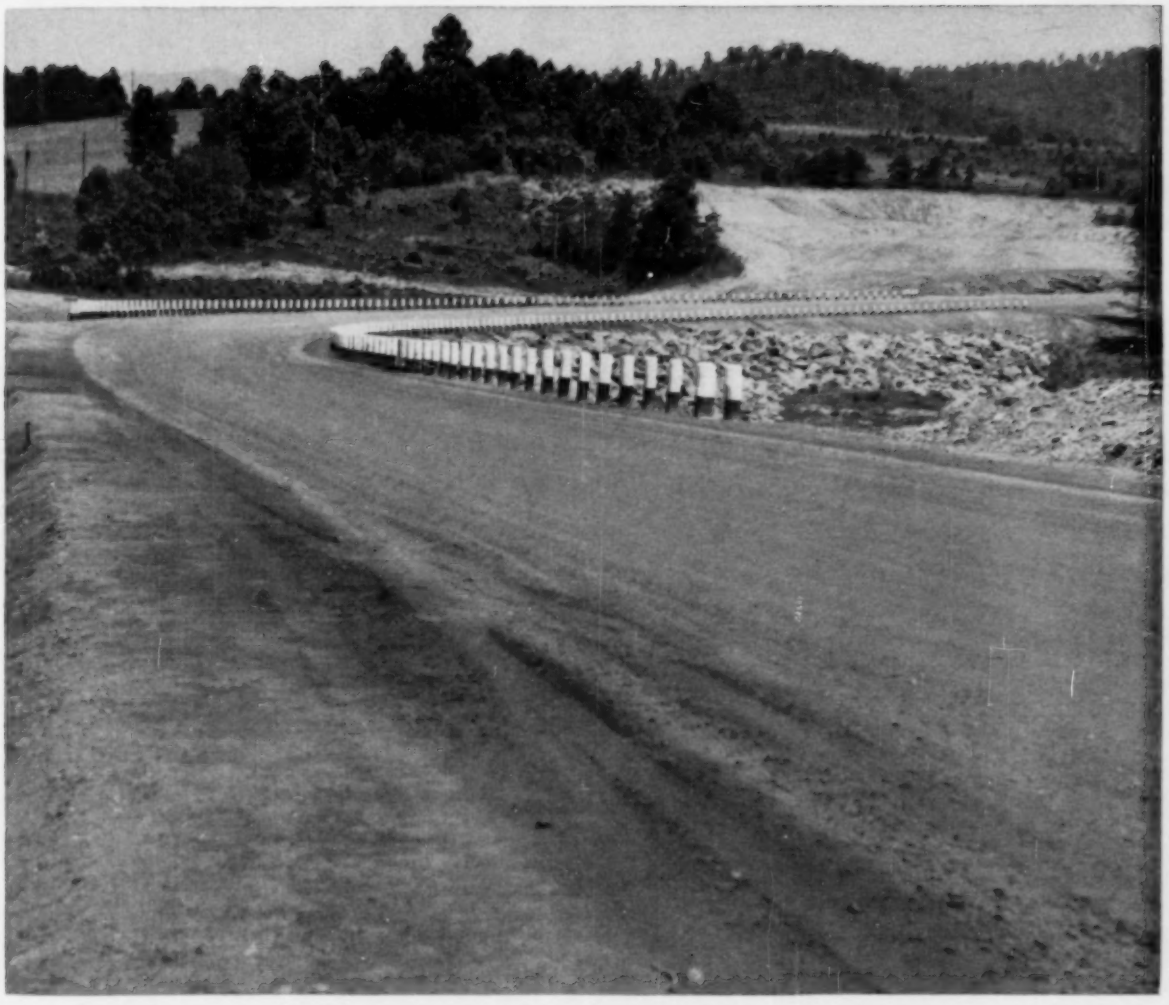
Dependable Fire Apparatus

671 Mack manufactures and matches the components of its fire equipment so they function as balanced, integrated apparatus. For details on the full complement of pumpers, aerials, etc., and their design features, write MACK FIRE APPARATUS, ALLENTOWN, PA.

Mosquito Control Kit

672 This kit is offered by JOHN BEAN DIV., FOOD MACHINERY & CHEMICAL CORP., LANSING 4, MICH. It includes community case histories, spray methods and results from a six-state area, general biological information and a mosquito control-sanitation spraying catalog.

(See page 63 for more Bulletins)



ride now . . . pave later

Stage construction with COLUMBIA Calcium Chloride improves your roads, pleases residents, stretches budgets

Keep more of the residents in your area satisfied at the same time you stay within the budget, by planning ahead on secondary roads. A new program of stage construction built around the proved moisture retention, dust control and stabilization power of COLUMBIA Calcium Chloride offers you these benefits:

1. IMPROVED RIDING ON MORE MILES OF ROADS. By stabilizing and compacting properly shaped secondary roads, you can offer safe, dust-free driving now, even though you can only afford to pave a small percentage of your roads. "Thirsty" Columbia Calcium Chloride turns the trick.

2. IMPROVED BASE FOR FUTURE HARD PAVING. Because COLUMBIA Calcium Chloride saves aggregate and holds fines moist, little or no further preparation is needed when your budget *does* permit final paving. The stabilized base means longer life for the up-graded surface, too.

Helpful information on the new balanced program of secondary road improvement is available from the makers of COLUMBIA Calcium Chloride. Just use the coupon.

columbia | southern chemicals
CHEMICAL DIVISION
PITTSBURGH PLATE GLASS COMPANY
ONE GATEWAY CENTER PITTSBURGH 22, PENNSYLVANIA
DISTRICT OFFICES: Boston · Charlotte · Chicago · Cincinnati · Cleveland
Dallas · Houston · Minneapolis · New Orleans · New York · Philadelphia
Pittsburgh · San Francisco · St. Louis · IN CANADA: Standard Chemical Limited

Columbia Calcium Chloride
One Gateway Center
Pittsburgh 22, Pa.

Please send me a copy of "A Program for PROGRESSIVE IMPROVEMENT of Secondary Roads."

Name_____

Title_____ Organization_____

Address_____

City_____ Zone____ State____

... Since 1894

13,512

HORTON ELEVATED STEEL WATER STORAGE TANKS

M68CB

■ CB&I's experience in the design, fabrication and erection of elevated steel tanks for water storage is unmatched by anyone. In 1894, CB&I pioneered the first hemispherical bottom tank at Ft. Dodge, Iowa. With the recent erection of a 1,500,000-gallon Horton® Spheroidal for Wheaton, Illinois, CB&I's experience spans 13,512 elevated steel water storage tanks . . . and scores more are under construction. CB&I's sound experience and pioneering spirit can solve your water storage problems, too. Let us show you how.

CB&I

Chicago Bridge & Iron Company
332 South Michigan Ave., Chicago 4, Ill.
Offices and Subsidiaries Throughout the World

WATERSPHERES® • WATERSPHEROIDS® • ELLIPSOIDAL TANKS • RADIAL-CONES • SPHEROIDALS • STANDPIPES • RESERVOIRS

CATALOGS for Improved Municipal Services

Write to address given or circle corresponding number on free post card on page 53.

Swimming Pool Facts

673 Two booklets of value to municipalities planning community pools have been issued by REFINITE POOL EQUIPMENT CO., P. O. BOX 410, VAN NUYS, CALIF., 89-page "Modern Swimming Pool Data and Design" (A.I.A. File No. 32-F-2) and "Swimming Pool Engineering Information."

Burns Combustible Trash, Refuse

674 Model 675 is a conical-shaped refuse burner that burns up to 7 tons per hour when burning continuously. It may be conveyor fed and easily admits truck or bulldozer. Design and engineering details available from INDUSTRIAL BLOW PIPE CO., P. O. BOX 5182, MEMPHIS 12, TENN.

New Highway Delineator

675 Developed by PRISMO SAFETY CORP. of HUNTINGDON, PA., this new product is said to provide higher reflectivity, even in fog, mist and high moisture conditions than any other known type. Available in rectangular shape (approx. 3½" x 7¾"), it can be made in virtually any shape to meet specific requirements.

Traffic Control Equipment

676 Among the traffic controls presented in the new catalog from THE MARBELITE CO., INC., 179 N. TENTH ST., BROOKLYN 11, N. Y., are the Model 1058 adjustable signals, Model M-30 expansible controllers for future growth of a traffic system, and Model M-20 SVA semi-vehicle actuated controller for accuracy and ease of sequence timing.

Secondary Road Planning

677 "A Program for Progressive Improvement of Secondary Roads" vides helpful information on a new balanced program of stage construction that will add up to improved riding on more miles of secondary roads and an improved base for future hard paving. Write COLUMBIA CALCIUM CHLORIDE, ONE GATEWAY CENTER, PITTSBURGH 22, PA.

Rugged Pick-Up Trucks

678 There are 15 models in the Chevrolet pick-up truck line—all are built to give a smooth ride and to lower the cost of ownership and operation. Descriptive brochure on the full complement will provide all the facts. Write CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICH.

Pocket-Size 2-Way Radio

679 Municipalities will find numerous applications for this new transistorized 2-way radio with rechargeable battery and ½- to 1-mile range. For full facts on Pocketphone, write GLOBE ELECTRONICS, a division of TEXTRON ELECTRONICS, INC., 22-30 S. 34TH ST., COUNCIL BLUFFS, IA.

Concrete Lighting Standards

680 *Catalog* No. 400 supplies complete information on Hy-Lite Stress-Spun concrete standards, designed for low maintenance, long life and for every lighting need. Write AMERICAN CONCRETE CORP., 5092 N. KIMBERLY AVE., CHICAGO 30, ILL.

Metals for Sewage Treatment

681 ANACONDA AMERICAN BRASS CO., WATERBURY 20, CONN. produces a vast number of products for sewage treatment and water works use from copper alloys. Anaconda *Publication* E-11 discusses the use of Everdur Metal for sewage treatment and water works equipment.

Sends Air Pollution Running

682 Industrial air pollution a serious, growing problem? A new descriptive brochure tells how harmful fumes and offending odors can be eliminated efficiently and economically. Write "MUNICIPAL ENGINEER, DEPT. C," CATALYTIC COMBUSTION CORP., 4725 FOURTEENTH ST., DETROIT 8, MICH.

Parts Assembly Exchange Plan

683 The 8-page booklet, "Avoid Delay the Modern Way," explains how the parts assembly exchange program offered by Caterpillar dealers enables owners of Cat equipment to obtain swift replacement of machine components at only the cost of repair. Request *Form* D115; write ADVERTISING DIV., CATERILLAR TRACTOR CO., PEORIA, ILL.

Tough Plastic Globes Foil Vandals

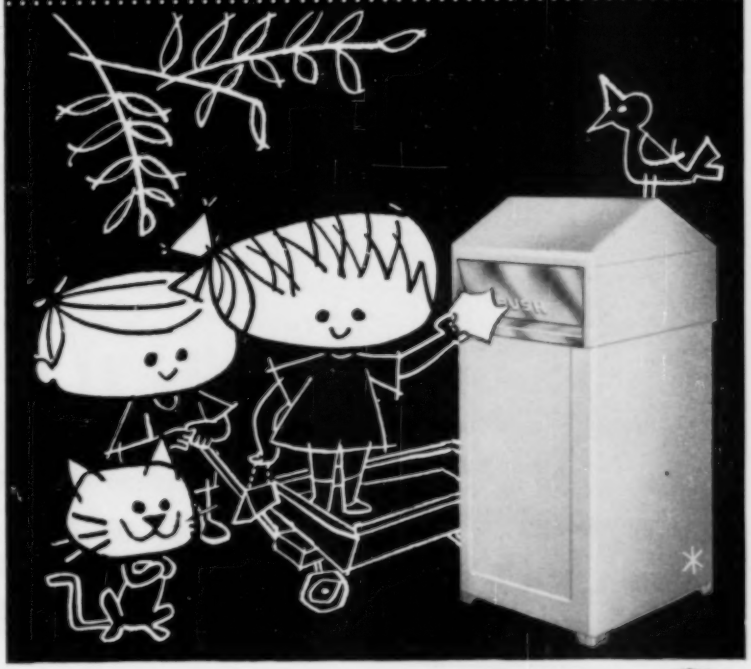
684 New York City uses pole-mounted orange-colored globes to call attention to fire box locations. By switching from glass to plastic globes of tough, durable Tenite Butyrate it has cut globe replacement costs 60%. For literature, write EASTMAN CHEMICAL PRODUCTS, INC., KINGSPORT, TENN.

Beats the Long-Haul Problem

685 In a new brochure, DEMPSTER BROTHERS, DEPT. AC-5, KNOXVILLE 17, TENN., explains how a small investment in conversion kits protects large investments in Dumpster containers and helps cities cut down on rising operating costs caused by long trips to disposal sites.

(See page 65 for more Bulletins)

Cut Cleaning Costs...indoors and outdoors!



Sturdy Superior waste receptacles are all-metal . . . built to last longer in both indoor and outdoor settings. And there's an attractively designed and properly sized model to fit every clean-up requirement. Find out today how Superior waste receptacles can simplify trash disposal and reduce clean-up costs for you.

*WEATHERMASTER
- Rainproof.
- Long-life enameled shell in choice of colors. Flaps and/or threshold available in stainless or painted steel.
- Easy-to-empty polyethylene liner available for Jet.

JET
The only self-closing receptacle that opens in any direction.

STANDARD
7 sizes to fit every need, Indoors or out.

SUPERIOR
JOHN WOOD COMPANY
Superior Metalware Division • St. Paul, Minn.
WIRE CRATES for paper and glass bottles • DISPENSER CANS • MILK CANS
ICE CREAM CANS • HARDENING BASKETS • HOODED and OPEN PAILS
STRAINERS Metalware for the Dairy Industry and Waste Receptacles
JOHN WOOD SINCE 1874

Here's one book
you can judge by
its coverage...

NEW police motorcycle brochure – get your copy now!

HARLEY-DAVIDSON MOTOR CO.
Dept. AC-5, Milwaukee 1, Wisconsin

Please send me a copy of your new police motorcycle brochure.

Name.....

Title.....

City..... Zone..... State.....

Harley-Davidson's new police motorcycle brochure gives you a detailed account of why Harley-Davidson police motorcycles are the first choice for fast-striking, hard-hitting law enforcement and traffic control. Packed with facts, features and illustrations, this handsome 12-page brochure covers both the versatile Harley-Davidson Police Solo and the all-purpose Police Servi-Car. Get your free copy now. Harley-Davidson Motor Co., Milwaukee 1, Wisconsin.

STRETCHING THE LONG ARM OF THE LAW . . .

HARLEY-DAVIDSON *Police Motorcycles*

FREE catalogs

You will find of interest

Write to address given or circle corresponding number on free post card on page 53.

Municipal Financing Assistance

686 Need a trustee or fiscal agent for revenue bonds? Why not ask the man at THE CHASE MANHATTAN BANK, CORPORATE TRUST DIVISION, 1 CHASE MANHATTAN PLAZA, NEW YORK 15, N. Y. He'll provide the skill, experience and high level efficiency to properly assist you.

Water Service Bulletins

687 LAYNE & BOWLER, INC., MEMPHIS, TENN., which offers complete services has issued three bulletins. *Bulletin* 10 tells of the services Layne provides; *Bulletin* 900, of a gravel wall well which helps increase specific capacity; *Bulletin* 200, oil-lubricated and 201, water-lubricated vertical turbine pumps.

Tells You What You Want to Know

688 One hundred of the most frequently asked questions about reproduction and drafting processes and materials are answered in a new 6-page brochure, made available by KEUFFEL & ESSER CO., THIRD AND ADAMS ST., HOBOKEN, N. J.

Warns Against Traffic Hazards

689 *Catalog* No. 61 explains the Dietz 3-way hazard warning system, shows how it alerts the oncoming driver, locates hazards in relation to driver's position, guides driver around hazards. For a copy, write R. E. DIETZ CO., DEPT. 95, SYRACUSE 1, N. Y.

Fire Alarm Systems

690 This 7-page brochure gives details on the fire alarm systems offered by HARRINGTON SIGNAL CO., 116 SEVENTEENTH ST., MOLINE, ILL. It includes equipment for school protection, boxes and accessories, and central station equipment.

Metal Trash Receptacles

691 In the current complete-line catalog of the SUPERIOR METALWARE DIV., JOHN WOOD CO., ST. PAUL, MINN., you'll find sturdy waste receptacles, attractively designed and sized to fit your indoor and outdoor needs.

It's Anti Insect

692 A high-capacity applicator designed for area control of moquitoes, flies and other pests, proves its skill and efficiency by delivering economical insect kill and control. For details, write SEE/FOG DIVISION, THE SEEBURG SALES CORP., 1500 N. DAYTON ST., CHICAGO 22, ILL.

New Sources for Rock Salt

693 With 14 new, strategically located rock salt storage depots, DIAMOND CRYSTAL SALT CO., ST. CLAIR, MICH., can give you faster, more economical service for snow and ice removal salt, help you meet your salt requirements in the shortest possible time. Depot locations given on request.

Circular Hydraulic Calculator

694 A new hydraulic calculator incorporates a number of new ideas. It is based on the Williams & Hazen formula and can be used for determining head loss, flow, velocity, size of pipe and differential of the head loss. For details, write the inventor ROBERT E. MARTIN, CONSULTING ENGINEER, 5402 PRESTON HWY., LOUISVILLE 13, KY.

Traffic Signal Structures

695 This new catalog of Weldforged steel and aluminum traffic signal standards and overhead sign and lane marker structures has been issued by KERRIGAN IRON WORKS CO., DEPT. A-5, NASHVILLE, TENN.

Better Sewage Treatment

696 *Bulletin* 7314 gives details on the operation of the SpiroVortex System, a new development in activated sludge treatment. For a copy, write DORR-OLIVER, INC., STAMFORD, CONN.

Snow Removal Equipment

697 Literature from WAUSAU IRON WORKS, WAUSAU, WIS., gives details and specifications for a complete line of snow removal equipment, including a rotary snow throw and loader for all makes of front loaders.

Trucks for the Economy-Minded

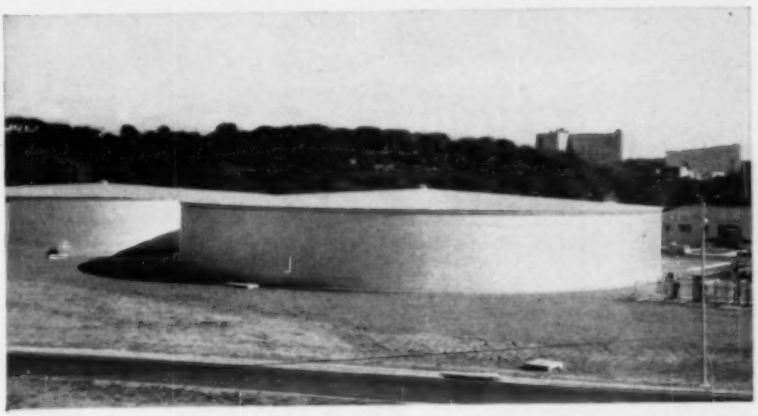
698 In providing the facts about its new Econoline Vans, FORD DIVISION, FORD MOTOR CO., P. O. BOX 658, DEARBORN, MICH., shows how these nimble, easy-to-park trucks which haul a full ¾-ton and provide new loading ease, save the purchaser money initially and during each year of service.

Airport Runway Improvements

699 *Bulletin* MBit-P-15 reports on nine important airport projects in the U. S., Canada and the Dominican Republic, graphically explains concrete paving techniques that have kept pace with the demands of the jet age, as well as the roles played by Pozzolith in obtaining quality concrete. Write THE MASTER BUILDERS CO., CLEVELAND 18, OHIO.

(See page 66 for more Bulletins)

Planning a storage tank?



FORT WORTH *chose a* STEEL TANK

built to AWWA standards

Only *steel* reservoirs and standpipes for municipal water storage are built to the rigid standards established by the American Water Works Association. The protective assurances set forth in these standards are unobtainable with any material other than *steel.*

STRENGTH
TIGHTNESS
ELASTICITY
ECONOMY
LONG LIFE

. . . these are inherent qualities of welded *steel* construction. Compare *steel* tanks with other types . . . you'll see why "steel tanks store water best." You can always specify *steel* tanks with confidence.

For your copy of the latest steel tank brochure, write—

STEEL PLATE FABRICATORS ASSOCIATION

105 West Madison Street • Chicago 2, Illinois

STEEL PLATE FABRICATORS ASSOCIATION

MONEY SAVING *catalogs*

Write to address given or circle corresponding number on free post card on page 53.

Utility Tractor Equipment

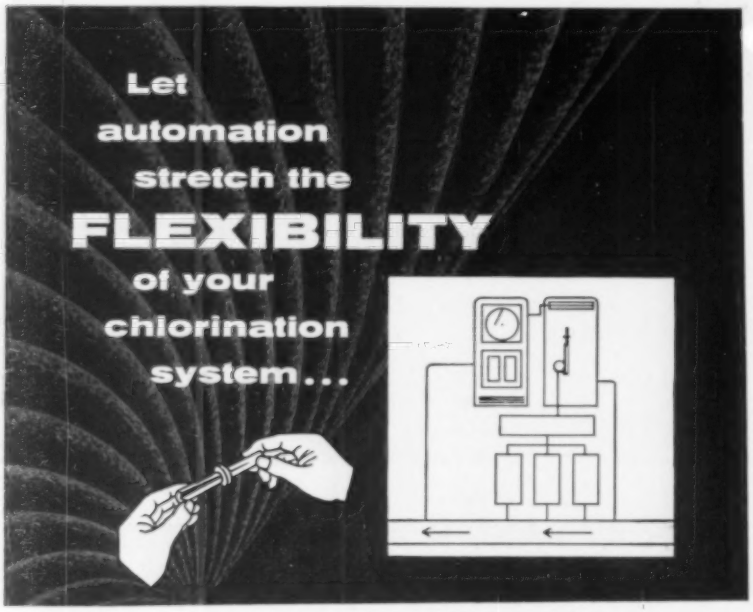
700 Features and specifications of Allis-Chalmers crawler and wheel utility tractor equipment are now available in an illustrated, three-fold specification sheet, UT-142, which pictures each model tractor with the attachments engineered to it. Write UTILITY TRACTOR DEPT., ALLIS-CHALMERS MFG. CO., MILWAUKEE 1, WIS.

New Radar Speed Meter

701 *Bulletin* R-115 gives full facts on the new Electro-Matic Model S-5 radar speed meter, which makes radar speed checks on cars and trucks easier, more accurate, more reliable. Write AUTOMATIC SIGNAL DIV., EASTERN INDUSTRIES, INC., NORWALK, CONN.

Continuous Rotating Derricks

702 Descriptive literature covers all specifications and applications of the three new models of Commander Series hydraulic, continuous rotating derricks announced by TEL-E-LECT PRODUCTS INC., 1001 MINNETONKA BLVD., MINNEAPOLIS, MINN. Model SM, for side mount; Model CM, for center mount; Model RM, for rear mount.



W&T **COMPOUND-LOOP CONTROL**

Compound-loop Control by Wallace & Tiernan maintains chlorine residuals automatically—provides utmost flexibility in arrangement and process control.

Chlorinator feed rate is adjusted by two signals: one from water flow, the other from continuous, automatic residual analysis. Since feed rate is the product of these signals, Compound-loop Control gives you a range of greater than 100:1. No matter how much flow or demand changes, your system always maintains the selected residual.

Regardless of the size, type, or physical layout of your system, Compound-loop Control adapts readily. Electric, pneumatic, or variable vacuum control signals can be used. And you can install Compound-loop Control as a package or convert to it, component by component, as your system expands.

For more information, write Dept. S-145.00

WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

It Adds to Revenue

703 . . . and over 50 cities have found it good public relations to have metered off-street parking lots and garages equipped with coin-changing machines. For details, write STANDARD CHANGE-MAKERS, INC., 422 E. NEW YORK ST., INDIANAPOLIS 2, IND.

For the Economy-Minded Municipality

704 AMERICAN MOTORS CORP., FLEET SALES DEPT., DEPT. A-4, 14250 PLYMOUTH RD., DETROIT 32, MICH., is offering three series of compact Rambler fleet cars, all geared to help lower the rising cost of maintaining municipal fleets.

Speed-Up Municipal Services

705 Literature from J. I. CASE CO., DEPT. E1561, RACINE, WIS., gives full facts and specifications on Utility loaders and attachments that are designed to handle a larger portion of your everyday municipal work faster and at less cost.

Road Widener, Shoulder Paver

706 BARBER-GREENE CO., AURORA, ILL., is now distributing a new, 12-page bulletin covering its Model SJ-50 road widener and shoulder paver, which lays all materials, including tamped and leveled hot asphalt mixes. Features and specifications as well as operating details are included.

Automatic Curb-Paver

707 It is now possible to lay weatherproof bituminous curbs at speeds of 4 to 6 feet per minute without curbing forms with the new, self-propelled Etnyre heavy-duty Automatic Curb-Paver, which delivers compaction equal to a 12 to 15-ton roll. Write E. D. ETNYRE & CO., OREGON, ILL.

Water Well Problems?

708 Well screens need cleaning? Casing leaks? Flow channels need enlarging? If your city is facing any or all of these problems and would like to know of up-to-date techniques of remedying them, HALLIBURTON CO., DUNCAN, OKLA., will provide the information.

Chain for Sludge Collection Scrapers

709 Long pitch pintle chain that's designed for extra service and long wear and is just right for sewage treatment plant service is the subject of literature, available from MOLINE MALLEABLE IRON CO., ST. CHARLES, ILL., specialists in chain manufacture.

Fire Service Meter

710 Detector Meter Model FM-CT is a 3-in-1 fire service meter, designed to provide maximum protection. Its proportional meter measures full pipe capacity flow without restriction; its disc-type, small rates of flow; its current type, medium and large rates of flow. Write HERSEY-SPARLING METER CO., DEDHAM, MASS.

Electric Photometer for Water Analysis

711 Adaptable for use in water analysis, the Klett Summerson electric photometer can be used for any determination in which color or turbidity can be developed in proportion to the substance to be determined. Write KLETT MFG. CO., 179 E. 87TH ST., NEW YORK, N. Y.

Municipal Fire Alarm Systems

712 THE FYR FYTER CO., ENGINEERED SYSTEMS DIV., U. S. HIGHWAY #1, P. O. BOX 66, EDISON, N. J., manufactures quality signal systems embracing all phases of municipal fire alarm systems, including boxes, central station control equipment and recording equipment. Request *Catalog* #15.

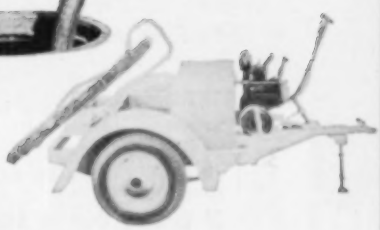
(See page 68 for more Bulletins)

...what are your

Sewer Cleaning Problems?

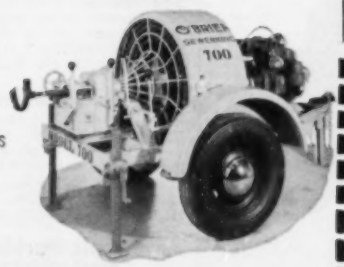
Solve them all with POWERIZED O'Brien EQUIPMENT

O'Brien Power Rodder 1000



O'Brien Power Rod Drive

Bucket Machine and Dumper



Sewerking Cable Machines

O'Brien makes a complete line of sewer cleaning equipment. Every unit is the exact answer to a specific cleaning requirement and reflects O'Brien's long experience and familiarity with the field. Economy, efficiency, and convenience of operation are built into every piece of equipment.

O'Brien Power Rodder:

matchless driving and pull-back power, unexcelled for bucket threading and general sewer maintenance. 1200 ft. capacity can be used with either 5/16 or 3/8-inch rod. Equipped with automatic safety throw-out, positive rod drive, and footage meter.

Bucket Machine and Dumper:

featuring exclusive O'Brien hopper. Bucket dumps into hopper; after repeated bucket travel, full hopper is dumped into truck. Use of hopper eliminates truck and traffic tie-up during cleaning operation which relieves truck for many hours of other duties while hopper is being re-filled. 9 hp., 16 hp., and 25 hp. models available.

Sewerking Cable Machines:

compact, powerful, economical cable rodder. Ideal for removing roots, grease, sludge and general sewer waste. Four Sewerking cable models available with capacities from 250 to 600-feet.

O'Brien MFG. CORP.
5636 Northwest Highway, Chicago 46, Ill.
Phone ROdney 3-7433

O'BRIEN MFG. CORP.,
5636 Northwest Highway, Chicago 46
Send me full information on

☐ O'Brien Power Rodder ☐ O'Brien Cable Machines
☐ O'Brien Bucket Machines ☐ O'Brien Power Rod Drive

City ..... State .....
Address .....
Attention .....
Title ..... Dept. .....

Dept. AC261

Specify

KENNEDY

Waterworks Valves

...and SAVE MONEY!

Your best assurance of saving money is Kennedy quality. Long the leader in waterworks valves design and construction, the Kennedy line is built for long, trouble-free service life. While A.W.W.A. specifications cover only non-rising-stem valves, the Kennedy line of A.W.W.A. standard gate valves also includes outside-screw-and-yoke valves and a wide variety of pipe end connections to meet your requirements.

Kennedy non-rising-stem A.W.W.A. gate valves have two "O"-Rings, the top for dirt seal and the bottom for pressure seal. Special feature of Kennedy "O" Ring construction is that the "O" Ring packing lies *above* the collar and therefore permits repacking under pressure. Find out all these Kennedy features and more by writing for Bulletin 611.

NOW Available!

The new KENNEDY A.W.W.A. Maintenance Manual giving detailed information. For your copy, write today on your letterhead.

Fig. 571X

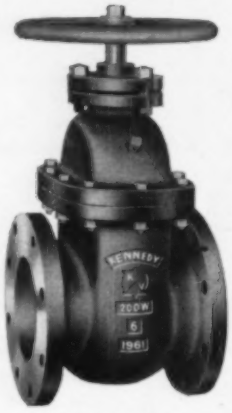


Fig. 561X

Fig. 566

KENNEDY VALVE MFG. CO.

ELMIRA, NEW YORK

VALVES • PIPE FITTINGS • FIRE HYDRANTS

• OFFICES AND WAREHOUSES IN NEW YORK, CHICAGO, SEATTLE, SAN FRANCISCO, ATLANTA • SALES REPRESENTATIVES IN PRINCIPAL CITIES •

FREE catalogs

Write to address given or circle corresponding number on free post card on page 53.

Free Power Plant

713 A winning idea will get you free a 1000-watt air-cooled electric power plant. For details, write "New Uses Contest," ONAN DIVISION, STUDEBAKER-PACKARD CORP., 2615 UNIVERSITY AVE. S.E., MINNEAPOLIS 14, MINN.

Pinpoints Gas Leaks

714 HEATH SURVEY CONSULTANTS, ZERO LAUREL AVE., WELLESLEY HILLS, MASS., specializes in solving gas leakage problems. To find out how a Heath survey can help you, write the company.

Decreases Sweeper Broom Wear

715 SANFAX CORP., P. O. BOX 604, ATLANTA, GA., reports that the use of Sanfax 299 gives street sweeper brushes longer useful life—as much as 25% to 50%—and helps them give a cleaner sweep. Details on request.

Handles All Jobs

716 Features and specifications, as well as application information, on the 180° Speed Swing and the ten quickly interchangeable attachments that make it a truly versatile all-purpose material handler, are given in literature from PEITIBONE MULLIKEN CORP., 4700 W. DIVISION ST., CHICAGO 51, ILL.

An Easy Way to Collect Traffic Fines

717 The Fine-O-Meter system is reported to be an effective and convenient way of collecting traffic fines from "overtime" parkers. Its key is that it collects the fines on the spot. DUNCAN PARKING METER CO., a division of NAUTEC CORP., CHICAGO 22, ILL., will provide details.

If You've Got to Saw It

718 . . . or drill it, and its concrete, then you'll want to do it right and with the greatest of ease and economy. CLIPPER MFG. CO., 2800 WARWICK, KANSAS CITY 8, MO., specialists in the manufacture of equipment for concrete and masonry sawing and drilling, can supply help and information.

Protective Coatings

719 Parlon-based maintenance coatings are designed to cover surfaces inside out. HERCULES POWDER CO., HERCULES TOWER, 910 MARKET ST., WILMINGTON 99, DEL., will provide, upon request, technical data on chlorinated rubber Parlon.

Protects Crews and Trucks

720 *Bulletin* 238 points out how rotating Beacon Ray warning lights protect work crews and trucks from injury and damage. For a copy, write FEDERAL SIGN AND SIGNAL CORP., 13556 S. WESTERN AVE., BLUE ISLAND, ILL.

Nine Machines in One

721 Grader, lift-loader, scarifier, bulldozer, broom, side dozer, patch roller, snow plow, berm leveler—the power-packed M-52 Maintainer with its hydraulically controlled attachments can be used the year 'round. For details, write HUBER-WARCO CO., MARION, OHIO.

Automatic Parking Meters

722 These skillfully engineered parking meters can be adjusted on the site for time, rate and coin changes. They're designed to produce revenue whether on off-street or on-street duty. For full details, write MAGEE-HALE PARK-O-METER CO., 3909 WILLOW SPRINGS RD., OKLAHOMA CITY, OKLA.

NOW! A high-quality FM two-way mobile radio for only $419!

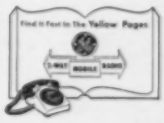
The General Electric Pacer...

. . . the all-new two-way mobile radio that gives you every advantage of quality FM communication at the low, low price of only $419.00.

The General Electric Pacer gives you communication range comparable to more expensive sets. Its low battery drain (the lowest of any in its class), of 4.2 amps means no special generator, no heavy duty battery, longer battery life. A real money saver!

It is lightweight and small enough to fit even in the new compact cars with ease. Installs in minutes. *And, of course, you get the full communications quality of FM radio built by General Electric!* Channel Guard protection against nuisance calls and skip signal interference also available at extra cost.

To learn the complete details on the low-cost General Electric Pacer, look under Radio Communication, in the Yellow Pages of your classified telephone directory. Or write: General Electric Company. Communication Products Dept., Section 151, Lynchburg, Va.

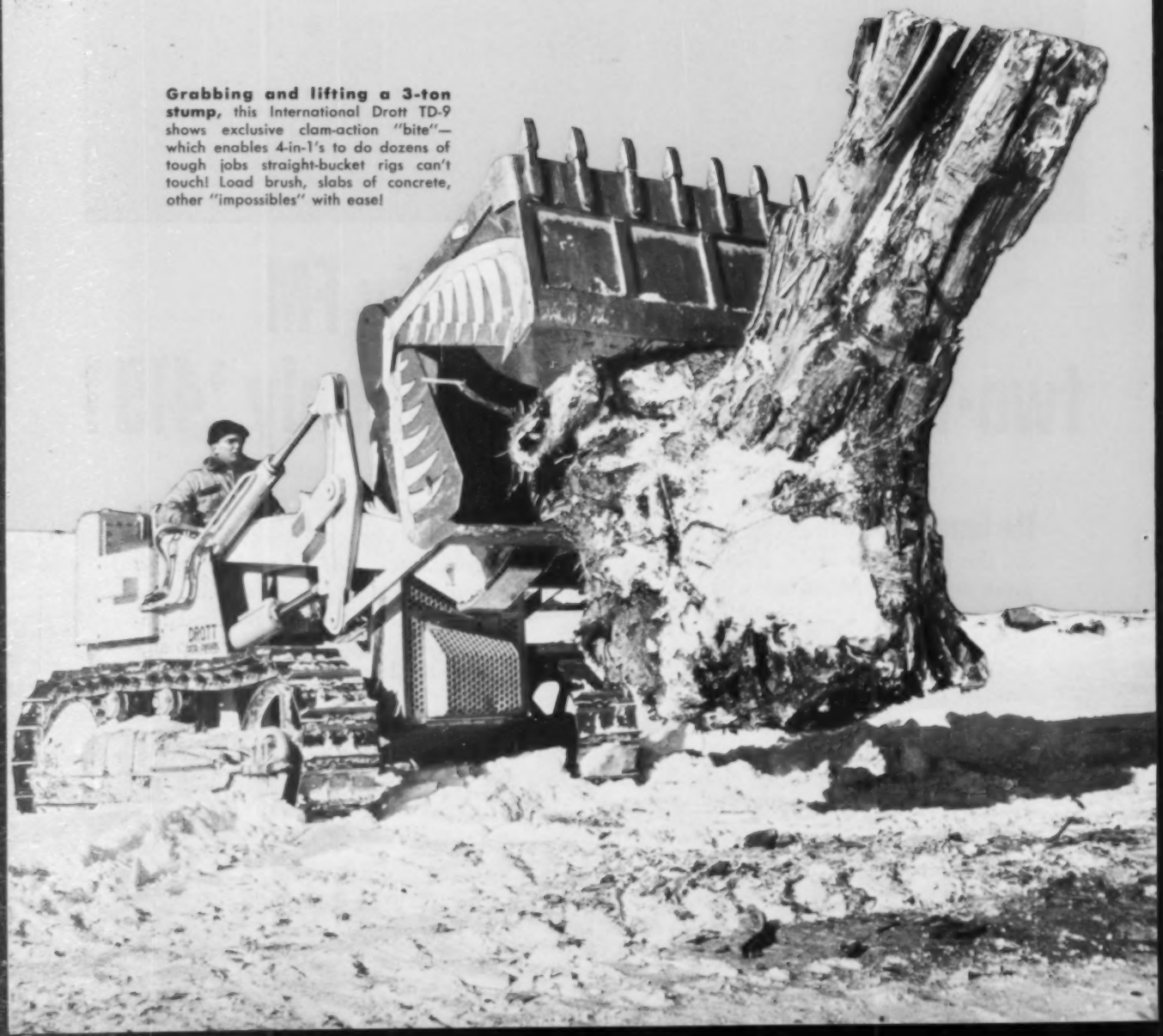


GENERAL ELECTRIC

Choose the "bucket with the bite..."

an exclusive clam-action 4-in-1... and

Your City Gets A Whole Equipment Spread of Job-speeding Actions!



Grabbing and lifting a 3-ton stump, this International Drott TD-9 shows exclusive clam-action "bite"—which enables 4-in-1's to do dozens of tough jobs straight-bucket rigs can't touch! Load brush, slabs of concrete, other "impossibles" with ease!

"Dragonized" to dramatize "the bucket with the bite," the stump-toting International Drott TD-9 Four-in-One demonstrates one of the many exclusive *plus-actions* the exclusive clam-action delivers!

Move the hydraulic selector lever and quick as a wink you also get full-capacity, full-range depth-controlled bulldozer action. Two seconds later, you can be grading, stripping, or spreading materials, "carry-type scraper" fashion, with inch-close accuracy. Next instant, the 4-in-1 can be positively bottom-dumping sticky materials that stop other rigs "in their tracks." Then, like a flash it can be back-dragging to grade, pick up, or pull down materials. Or "clamming-on" to heavy, unwieldly "impossibles" like stumps and loading them wholesale!

In addition, the 4-in-1 gives you the top excavator-loader performance on the market—including certified break-out forces ranging from 11,200 lbs with the T-340 to 43,150 lbs with the TD-20! And only the clam-action 4-in-1 has the performance-protection of exclusive shock-swallowing Hydro-Spring.

See for yourself how many "machines" the only modern loader is—how many thousands of dollars of "budget relief" a 4-in-1 can deliver your city. Prove you get a whole spread of work-speeding actions—that obsolete "single-action" loaders, and double for a yard-full of limited-duty rigs! Let your International Drott Distributor demonstrate!

See how "the bucket with the bite" delivers sanitary landfill efficiency no other outfit even approaches. The clam-action 4-in-1 can spread, level, cover, and compact refuse to guarantee minimum-cost sanitary landfill waste disposal. Here, the TD-9 Four-in-One as "carry-type scraper" is evenly covering on-the-go, refuse it had "layered" and "ironed down."

Another "biting action" as "carry-type scraper"—this TD-15 Four-in-One is grading a street with inch-close accuracy. Watch the earth "boil" in! You can strip and spread materials with this same versatile action!

End the sticky materials problem for good with 4-in-1 clam-action—even where other loaders are helpless. Note how opening the clam of this TD-15 Four-in-One pulls material from bucket surfaces—gravity pull does the rest, to enforce clean dumping!

With the clam up and the blade segment in position, "the bucket with the bite" doubles for a full-size, full capacity bulldozer—'most anywhere. This TD-9 Four-in-One is grading for sidewalks in a new subdivision.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL®
DROTT®

OLD FIRE HYDRANTS

STILL DOING 24-HOUR DUTY

IN CAMDEN, N.J.

The Camden, N.J., Water Department was formed in 1845, when James K. Polk was president. A small building was erected at the foot of Cooper Street to house the pumping station. Water mains were installed and approximately 15 years later, R. D. Wood Hydrants were tied in. Since those days Camden has grown from a community of 6500 people to a modern industrial city of 125,000. All utilities have been changed beyond recognition . . . except for a number of the original R. D. Wood Hydrants that are still in service. Conditions have changed, but the reliability built into those hydrants makes them just as effective now as they were over 100 years ago.

Like all R. D. Wood Hydrants, the oldtimers are of simple but sound construction; their operation cannot be impaired by foul weather, snow, sleet, ice or silt. Apart from the hazard of being in the path of a truck out of control or the possibility of street relocations, there is no foreseeable trouble ahead for them for many more years. There has never been better fire protection for any community than R. D. Wood Hydrants.

Conform to A.W.W.A. specifications

R. D. WOOD COMPANY

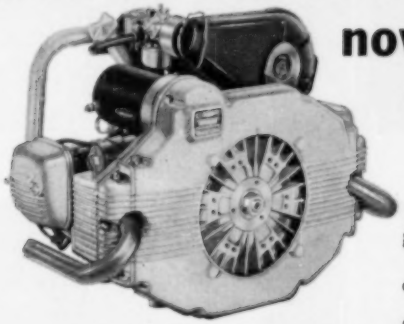
Public Ledger Bldg.
Independence Square
Philadelphia 5, Pa.

Established in 1803

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds)

nearest thing
yet to
COST-
FREE
transportation

CUSHMAN TRUCKSTERS®



now with new, more powerful, die-cast aluminum engines!

Cost-cutting Trucksters now deliver more live power, more efficiency, more versatility and utility with either of Cushman's great new, advanced, die-cast aluminum engines:

- **The Twin Super Husky; two cylinders, rated at 18 HP.**
- **The Super Husky; one cylinder, rated at 9 HP.**

Cushman Trucksters also now offer many other new advances — such as an extra-heavy duty clutch, synchro-mesh transmission, and auxiliary transmission* — to go along with these proven advantages . . . "all-muscle" chassis and body with 800 pound payload rating . . . greatest economy resulting from low initial investment, minimum operating and maintenance costs . . . general utility indoors or out, on or off street.

**Auxiliary Transmission optional; increases drawbar pull; eliminates strain of repeated starts and stops; produces smooth cruise at low speed. All-weather cab also optional.*

ACTUAL TRUCKSTER COST ANALYSIS NOW AVAILABLE

A coast to coast survey of typical Truckster users not only proves greatest economy, but reveals the wide range of uses to which the Truckster is being put.

Municipal uses ranged from mosquito control to park, cemetery and golf course maintenance . . . from trash collection to police and utility department service. Operating costs reported by municipal users ran as low as 0.66 cent a mile, and averaged 1.17 cents a mile.

Survey results have been compiled in condensed form and are available upon request.

Ask your dealer for a demonstration or write for FREE Cost Analysis Report and descriptive literature

CUSHMAN MOTORS 1023 No. 21st, Lincoln, Nebraska
A subsidiary of Outboard Marine Corporation

Please send Cost Analysis Report and descriptive literature.

NAME _____

TITLE _____

CITY _____ STATE _____

for the best practical applications for an

we'll give you

HERE ARE A FEW OF HUNDREDS OF USES FOR ONAN ELECTRIC PLANTS

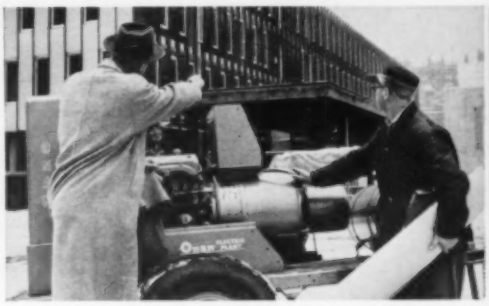
Standby electric power for
Hospitals
Schools
Office Buildings
Homes
Industrial Processes
Greenhouses
Dairy Farms
Hatcheries
Theaters
Stores
Service Stations
Radio & TV Stations
Hotels, Motels
Bridge Lift Gates
Toll Highway Booths
Restaurants
Banks
Military Installations
Resorts
Airport Towers
Microwave for Railroads and Pipeline Distribution
Sewage Disposal
Water Treatment Plants
Iron Lungs

Portable primary power for
Display Vans
Soft Ice Cream Vans
Airport Runway Lighting
Civil Defense Communication
Fire Dept. Lights, Tools
Police Radar, Lights, Communications
Oil Exploration
Mining Equipment
Pipeline Distribution
House Trailers
Magnet Generators
Home Builders, Carpenters
Highway, Dam, Bridge Construction
Electric, Telephone, Gas Utilities
Cemetery Maintenance
Golf Course & Park Maintenance
Electricians
X-Ray Equipment
Bookmobiles

Marine power for
Pleasure Boats
Work Boats

Auxiliary power for lights, communications, appliances on Work and Pleasure Boats.

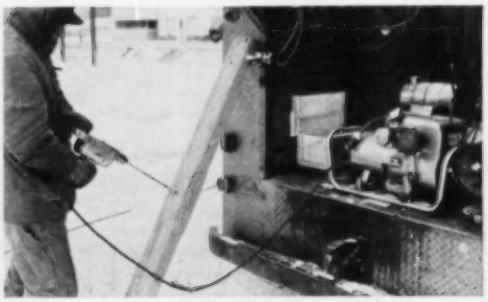
Portable power for pipeline X-Ray equipment, lights, tools and communications.



On-site power for construction tools, lighting in areas beyond mainline service.

Portable power for municipal maintenance equipment; tools, floodlighting.

Standby for critical processes in chemical, ceramic, and other manufacturing plants.



Line repair power and standby for electric, telephone, and gas utilities.

Provides power for lights, cooling, fudge heaters, fans for manufacturing ice cream vans.

Critical electric power for Civil Defense communications and lighting.

Onan Electric Plant that have never been used before

an Onan plant free

We'll give a 1,000-watt air-cooled Onan* (shown below) for each of the ten best applications for an Onan plant that have never been used before. Your idea can apply to any size or type Onan plant—from 500 watts to 230 kw—gasoline or diesel, air or water cooled.

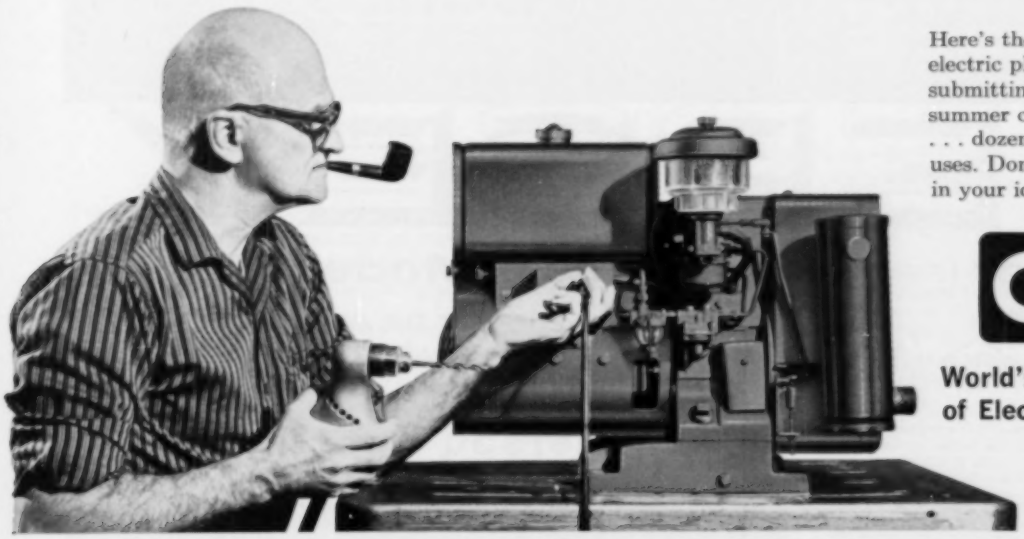
In 1926, when Onan pioneered with the "Ten-Lite"—a 250-watt d.c. plant—there was a clear-cut need: enough power to burn ten electric lamps in hundreds of thousands of homes without electric utility service.

Today, this market is virtually non-existent in the United States. But hundreds of new uses undreamed of in 1926 have increased the need for electric generator sets each year. Thus, because men with ideas continue to find new uses for packaged electric power, Onan continues to build more plants than any other manufacturer.

Quite often, we never know who had the original idea for a new application. And, we're sure, Onan plants are used today in ways we've never heard about. If you have an idea for a new use, it may be helpful to you to see Onan plants at your local distributor. He's listed in the Yellow Pages in every major city. Or, write Onan for free literature.

---

*You may submit as many ideas as you wish, but no more than one Onan plant will be awarded to an individual. There are no restrictions on form of entry . . . you may submit photographs, sketches or a written statement of any length you desire. Onan will judge all entries on the basis of originality, practicality and commercial utility, and decisions of the judges will be final. If the same suggestion or similar suggestions are made by more than one entrant, the first one submitted, according to the postmark, will be eligible for the prize. Winners will be notified on or before July 15, 1961. Entries must be mailed to "New Uses Contest," address below, and must be received not later than June 15, 1961. All ideas submitted become the property of Onan and, whether or not the entries receive an award, may be used commercially by Onan in any way it sees fit with or without acknowledgment of the originator. No entries can be returned.



Here's the 1,000-watt Onan electric plant you may win for submitting your idea. Ideal for summer cottage, home standby . . . dozens of portable power uses. Don't put it off . . . send in your idea right away!

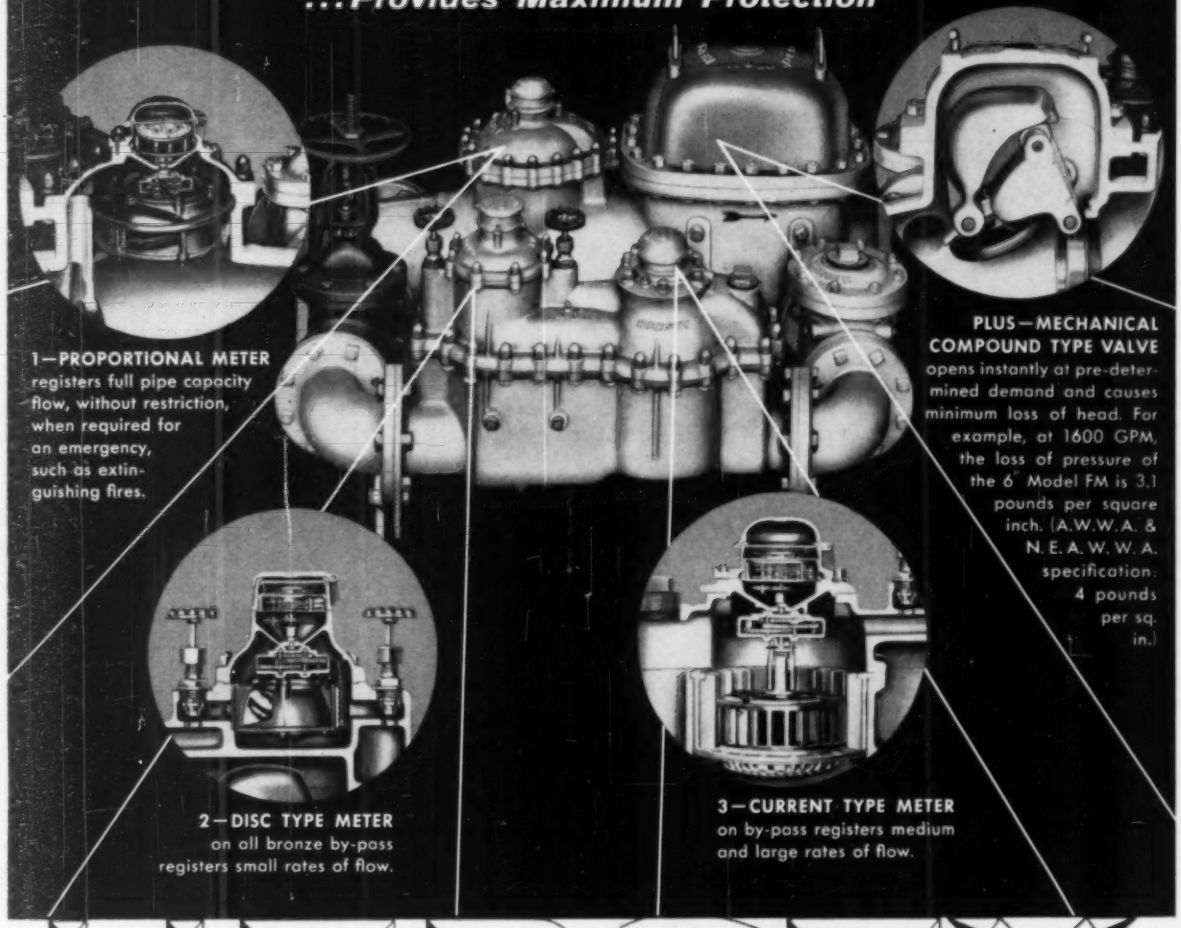
Onan®

World's Leading Builder of Electric Power Plants

ONAN DIVISION, STUDEBAKER-PACKARD CORPORATION • 2615 UNIVERSITY AVENUE S. E., MINNEAPOLIS 14, MINNESOTA

3-in-1 FIRE SERVICE METER PRODUCES MAXIMUM REVENUE

...Provides Maximum Protection



1—PROPORTIONAL METER registers full pipe capacity flow, without restriction, when required for an emergency, such as extinguishing fires.

2—DISC TYPE METER on all bronze by-pass registers small rates of flow.

3—CURRENT TYPE METER on by-pass registers medium and large rates of flow.

PLUS—MECHANICAL COMPOUND TYPE VALVE opens instantly at pre-determined demand and causes minimum loss of head. For example, at 1600 GPM, the loss of pressure of the 6" Model FM is 3.1 pounds per square inch. (A.W.W.A. & N.E.A.W.W.A. specification: 4 pounds per sq. in.)

HERSEY

Detector (FIRE SERVICE) Meter – Model FM-CT

Sizes 6", 8" and 10" of Model FM-CT with Compound by-pass and sizes 3" through 10" with Disc by-pass are listed as standard under the Re-examination Service of Underwriters' Laboratories, Inc., and approved by Factory Mutual Laboratories for use in Factory Mutual insured properties, also listed by Underwriters' Laboratories of Canada.

VISIT OUR EXHIBIT AT THE AWWA CONFERENCE JUNE 4-9, COBO HALL, DETROIT, MICH. YOU'LL FIND US IN BOOTH Nos. 106, 108, 110, 112.

Hersey-Sparling
Meter Company
HERSEY PRODUCTS
DEDHAM, MASSACHUSETTS

Branches: Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Kansas City, Mo., Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle.

PLAN *Low-Cost* BRUSH DISPOSAL-

PLAN ON A FITCHBURG CHIPPER

The exclusive Spring-Activated Feed Plate of the Fitchburg Chipper assures smooth, efficient, SAFE operation. This built-in engineering development, which makes trouble-free operation possible, has been patented.

FAST... ECONOMICAL...

...SAFE

This safety feature is important. "Because of the feed plate with its safety spring the men can't get hurt by any back-throw from the Chipper," explains the Superintendent, The Park and Shade Tree Commissions, Bridgeton, New Jersey.

Please send in the coupon for more information, and for copies of articles on chipping which appeared recently in leading publications. These feature articles describe five methods of brush disposal, and ten new ways to utilize "by-product" chips. Send for your copies, they are well worthwhile.

Plan on *low-cost* disposal of trimmed branches, whether it's for a tree company, utility, highway department, a city, or a park department—plan on getting a Fitchburg Chipper.

This well-engineered and rugged machine turns brush into easy-to-dispose-of chips, at very low cost. Only the Fitchburg Chipper has an exclusive, patented Feed Plate which automatically adjusts for any size brush up to its rated capacity, making it possible to chip large or small material with ease.

This Spring-Activated Feed Plate reduces shock action and horse-power requirements since it permits chipping of larger size wood without extra power. The Feed Plate results in fast, efficient chipping without a heavy, cumbersome fly wheel. The smoother chipping action means lower maintenance, too, as well as greater crew safety.

FITCHBURG ENGINEERING CORPORATION

Dept. AC-15
Fitchburg, Massachusetts

☐ Please send me important articles which describe 5 methods of brush disposal and 10 new ways to utilize brush chips.

☐ Please send more information on Fitchburg Chippers.

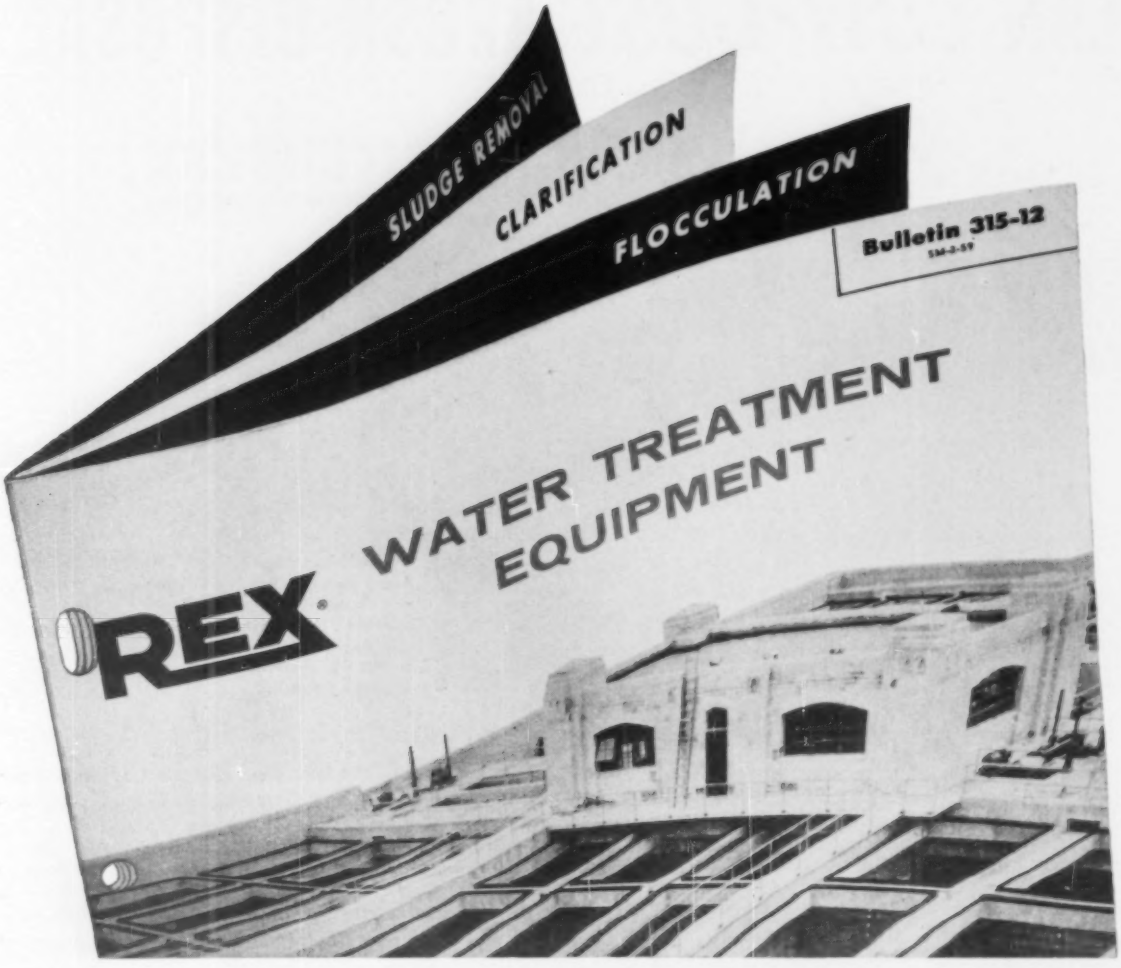
Name_____

Address_____

City_____ Zone____

State_____

FITCHBURG ENGINEERING CORPORATION FITCHBURG, MASS.



LOOKING FOR MAXIMUM CAPACITY...LOWER COSTS?

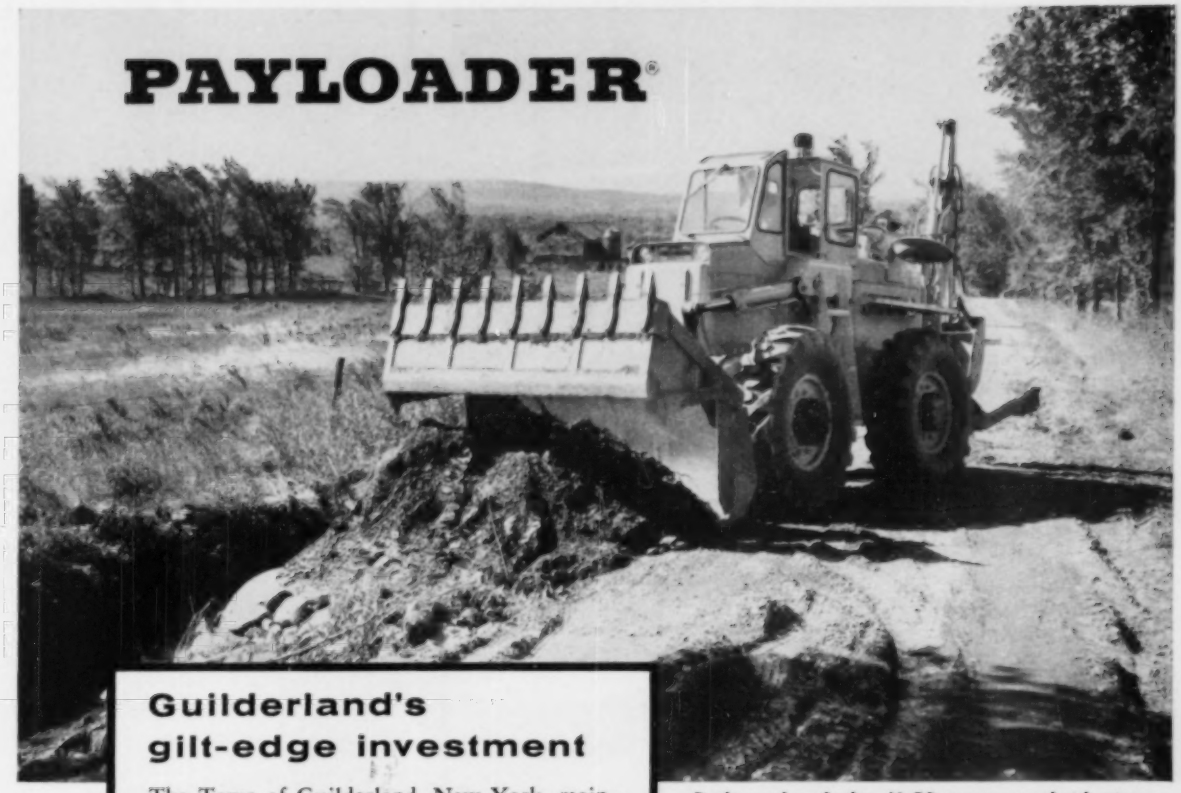
You'll find your answer here!

If you're looking for equipment that can provide maximum plant capacity...cut operating and construction costs in the pretreatment of water...you'll find the answers in Bulletin 315-12.

Rex Flocculation Equipment, Clarification Equipment and Sludge Removal Equipment have many unique design features you should know about before you specify or buy. Take Rex Verti-Flo or Rim-Flo Clarifiers, for example. In many applications these exclusive Rex developments have *doubled* existing plant capacity without need for new structures. Similar economies are possible in new installations.

Why not send for your copy of Bulletin 315-12 today. Write CHAIN Belt Company, 4648 West Greenfield Avenue, Milwaukee 1, Wisconsin.

REX®
CHAIN BELT COMPANY



Guilderland's gilt-edge investment

The Town of Guilderland, New York, maintains 115 miles of its own roads — 60 paved and 55 unpaved. One of its most useful, versatile and busy machines is a Model H-50 PAYLOADER equipped with a Drott "4-in-1" bucket and a Wain Roy hydraulic backhoe. It is used for sewer work as well as for road construction and maintenance.

Victor Bassler, Superintendent of the Highway Department says, "We've only had this rig about a year but it has really done a job. In fact it has done all kinds of jobs, and its versatility continues to surprise us as we find more things it *can* do. Sloping banks and loading out awkward materials like brush, stumps and boulders are examples of many troublesome and time-consuming jobs that it does quickly and cheaply. It has also been a valuable and busy machine this past winter as a snow fighter. Here is a rig with which we can tackle just about any job that comes along."

Your Hough Distributor is ready to show you how a PAYLOADER can be a gilt-edge investment for you, too. See him today.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER, PAYLOMATIC and PAY are registered trademark names of The Frank G. Hough Co.

Both ends of the H-50 were used plenty to clean up after hurricane "Donna" — the backhoe to clean out and reshape ditches, the "4-in-1" bucket to remove fallen trees, fill in washouts and clean up debris.

THE FRANK G. HOUGH CO.
710 Sunnyside Ave., Libertyville, Ill.

Send me "More mileage for your tax dollar"

Name _____

Title _____

Dept. _____

Street _____

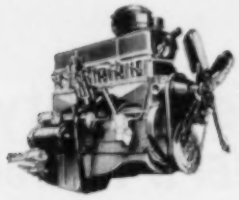
City _____ State _____

5-B-6

CHEVROLET

HERE'S WHY IT'S A GOOD IDEA TO GET A CHEVY PICKUP:

■ Because Chevy's wide choice of models (there are 15 of 'em!) means you'll get the *right* pickup . . . because each is engineered to the highest standards . . . because Chevy's rugged, smooth-riding build lasts longer, costs you less to own and keeps your profits at peak levels. Chances are, whatever you consider most important, you'll find Chevrolet has thought of it first, and done most about it. Whether you get a handsome Fleetside or handy Stepside model (or possibly a Corvair 95 Rampside or Loadside or one of a half-dozen four-wheel-drives) you'll soon be convinced that buying a Chevy pickup was the best idea you ever had!



ECONOMY

The Chevrolet slant on economy makes the most sense of all, with the tight-fisted 235-cubic-inch Thriftmaster 6 (standard) leading the way. It's the most experienced money-saver going, one that's powered more payloads than any other engine in the business. It's famous for its stingy way with a gallon of gas and also for its rock-ribbed durability. It keeps your Chevy at work, making money, instead of in the repair shop, costing. And if you prefer the extra snap of V8 power, there's the eager, efficient Trademaster V8, 160-horsepower strong and available at nominal extra cost in all conventional pickup models.

CAPACITY

Chevy pickup bodies—6½, 8 or 9 feet long—are tops in cargo capacity and convenience, with a long list of bonus-built features to keep them working better and looking their best from delivery to trade-in. Both Fleetside and Stepside models feature select wood floors for better footing and quieter going, with steel skid strips to ease loading and unloading. Extra strong grain-tight tailgates with anti-rattle latches and support chains minimize bulk cargo leakage and offer firm support for extra-long loads. Fleetside body sidewalls are double-walled in the lower section, for extra rigidity and protection of exterior surfaces against dents caused by shifting cargo.

PROFIT-★★★★★-PROTECTING RIDE

All of Chevrolet's 2-wheel-drive pickups feature years-ahead Independent Front Suspension design, with ride, roadability and ruggedness that are paying off for truckers everywhere. The reduction in driving effort and fatigue that makes a bigger day's work come easy is just one part of the three-way Chevy payoff. The same shock-cushioning action protects your cargo against damage en route, and also protects the truck itself against the bumps that can batter the life out of cab, body and chassis components. Sounds too good? . . . sample it for yourself at your Chevy dealer's, soon! . . . Chevrolet Division of General Motors, Detroit 2, Mich.

1961 CHEVROLET STURDI-BILT TRUCKS CHEVROLET

DON'T LEAVE THE JOB

PUT **IGLOO**

ON IT!

Meet that deadline! Keep more men on the job more of the time by placing IGLOO portable water coolers about the site. One IGLOO for every 6 to 8 men pays off in time and money, and helps employee relations, too. When you order water coolers specify IGLOO. It's been time-tested and proved on thousands of tough jobs over the world. There are 23 sizes in all—one will exactly fit your job.

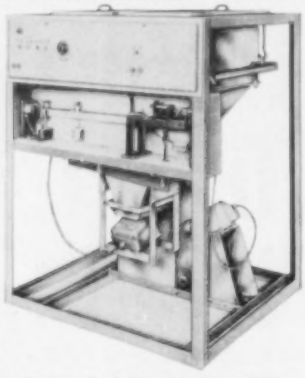
Write for catalog. **IGLOO** *Memphis 18, Tenn.*

FOR ACCURATE FEEDING OF DRY CHEMICALS

SYNTRON DIMINISHING BATCH

WEIGH FEEDER MACHINES

Designed for the accurate feeding of chemicals required in water filtration and sewage treatment plants. Syntron Diminishing Batch Weigh Feeder Machines provide a reliable continuous feed of materials in pounds per hour at any desired predetermined rate from 3 lbs. to 300 lbs. per hour.



Write for a Syntron Catalog today

If your city is facing such a problem or has an application requiring accurate, continuous weigh feeding, consult your Syntron representative for information and quotations.

61WF1

SYNTRON **SYNTRON COMPANY**
430 Lexington Avenue • Homer City, Pa.

GRAVELY Versatility KEEPS Power on the job— All Year Long!

Cut expensive idle time

GRAVELY Doesn't Loaf— GRAVELY Works!

When you hire a man for a full-time job, you expect full time work. So why buy one-job equipment that loafs until its specialty is called for?

ONE 6.6 hp. Gravely Tractor powers 30 tools!

Choose the tools to fit your jobs—any season. From mowing to snow removal, the Gravely Tractor keeps busy saving time, saving money, year after year.

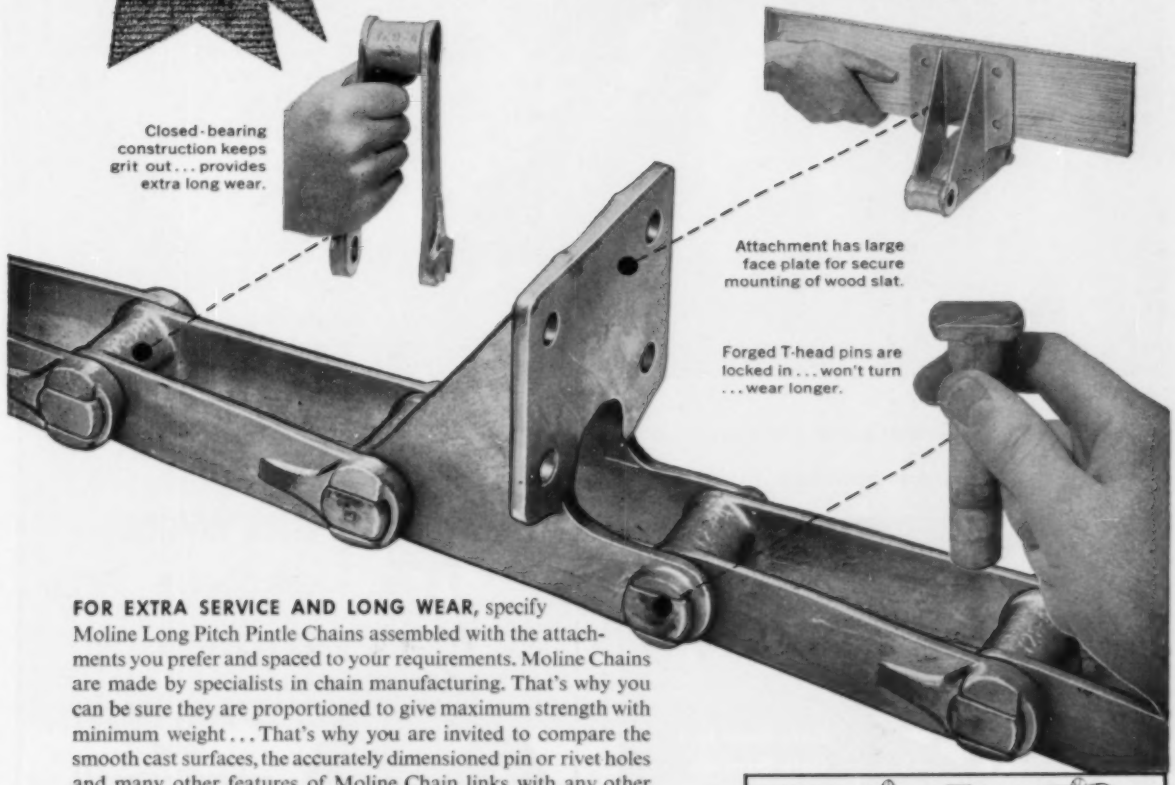
GET THE FACTS—SEE THE PROOF! See Gravely actually solving grounds maintenance problems, saving money. Ask for your FREE copy of "How To Cut Costs for Grounds Maintenance." Or better still, request a FREE demonstration. *Write Now!*

GRAVELY TRACTORS
P. O. Box 636E Dunbar, W. Va.

SOLD & SERVICED BY AUTHORIZED GRAVELY DEALERS

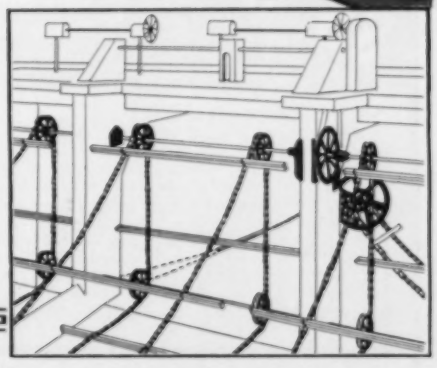
When selecting chain for rugged service in sewage treatment plants, remember...

Specialization makes a big difference!


Closed-bearing construction keeps grit out... provides extra long wear.
Attachment has large face plate for secure mounting of wood slat.
Forged T-head pins are locked in... won't turn ...wear longer.

FOR EXTRA SERVICE AND LONG WEAR, specify Moline Long Pitch Pintle Chains assembled with the attachments you prefer and spaced to your requirements. Moline Chains are made by specialists in chain manufacturing. That's why you can be sure they are proportioned to give maximum strength with minimum weight... That's why you are invited to compare the smooth cast surfaces, the accurately dimensioned pin or rivet holes and many other features of Moline Chain links with any other make. Moline's "*triple checking*" test procedures guarantee their uniform, high quality.

Moline Chains are interchangeable with "standard" chains of other manufacture and are available in Malleable, Promal or special analysis metal having special corrosion resistance.



For complete information and prices, phone your local Moline distributor or write direct to the factory today!

LEADERS FOR 60 YEARS

Moline MALLEABLE Chains

MOLINE MALLEABLE IRON CO.
St. Charles, Illinois
Specializing in the Manufacture of Chains

Your Problem:
LEAVES & LITTER

Your Answer:
The GOOD ROADS

VAC-MASTER

Two wheeled. Vacuums 60" path, mulches leaves, breaks up debris. Write for spec sheet!

Good Roads **GOOD ROADS MACHINERY CORPORATION**
MINERVA, OHIO
Manufacturers of Snow Plows, Road Spreaders, Leaf & Litter Equipment

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Where you want nothing to grow

SS WEED-KILLER

Gets them fast
Gets them all
Keeps them off

Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth. . . .

Reduces fire hazard by eliminating flammable vegetation close to industrial locations. . . . Finishes such hardy pests as poison ivy, wild honeysuckle, bindweed, crabgrass. . . . Cuts ground maintenance costs drastically. . . . One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

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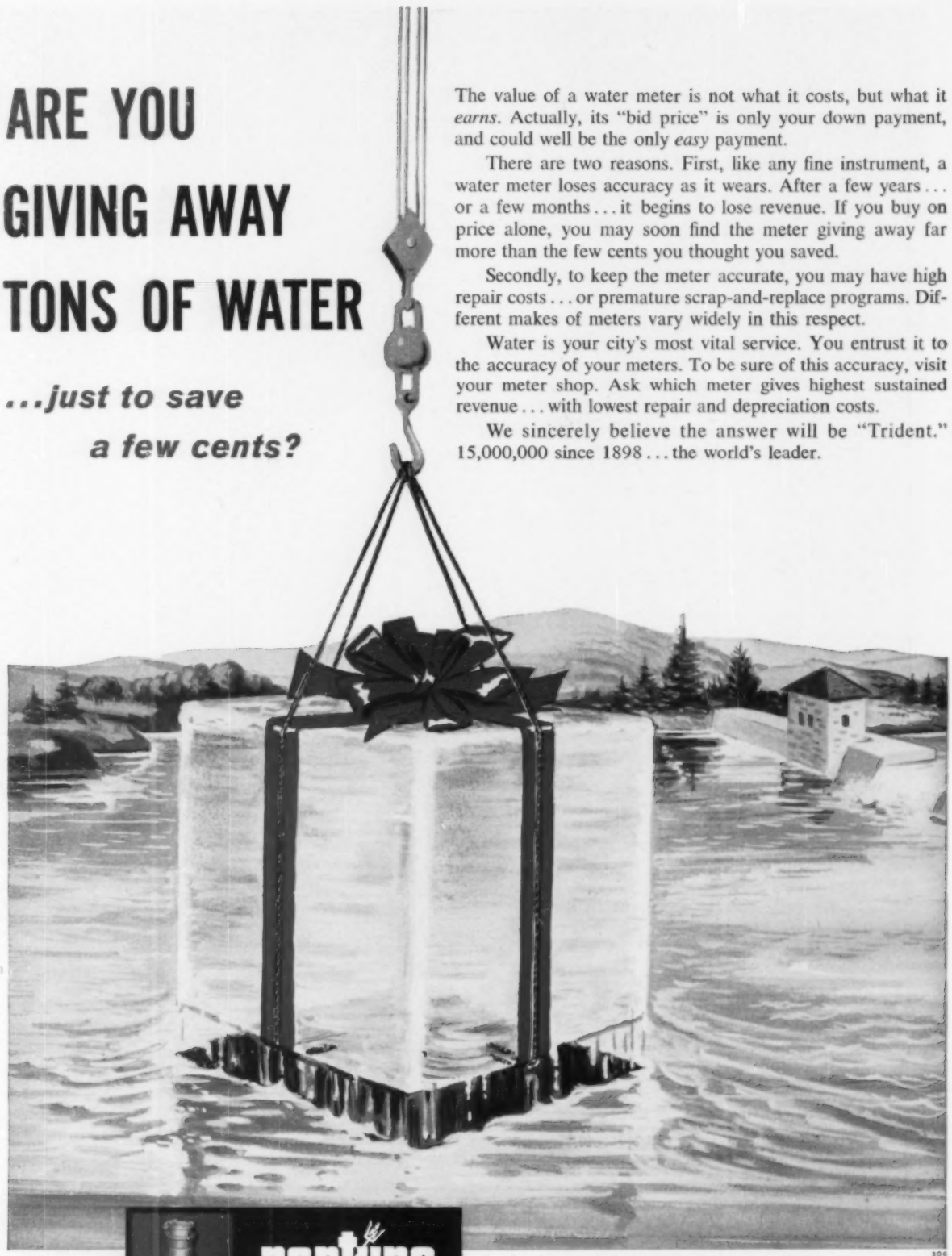

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MAY 1961

The American City

A raised walkway extends around three sides of the main storage floor.

Photos courtesy of Walter G. Page and Lens Art Photographers

Central Garage Ends Duplication

Unusual financing permits Wyandotte, Mich., to combine six separate facilities into one

By **LOUIS H. MOEHR**, City Engineer

Our new headquarters and garage for the Department of Public Service is more than just a building of which the citizens can be proud. It provides a long-needed facility that enables the city engineer to render better and more economical service to the community.

For many years the various departments of public works under the city engineer were housed in six separate quarters scattered throughout the city. These scattered operations required considerable duplication of equipment and made it difficult to co-ordinate the work of the various departments. Much time was lost traveling between the various locations.

The Divisions of Street, Sanitation, Sewer, Park, Construction, Garage and Equipment Repair, Sign, Public Buildings, and Parking Meter now all work out of the new headquarters. These activities, supervised by Don Marshall, Superintendent of the

The exterior appearance of the new public service building, though a secondary consideration, gives a boost to community pride.

Department of Public Works, are all responsibilities of the city engineer.

The new rectangular building measures 120 feet along the front by 171 feet deep. It is surrounded by a storage yard of about two acres. The main enclosed storage area in the center of the building is 66 feet by 146 feet with high overhead doors at the rear and one side. In front of this storage area are the offices and service rooms for the employees. On either side are rooms used by the various divisions for their headquarters and storage of their specialized tools and equipment. One year of experience shows that semi-isolation of the activities of the various divisions works very well.

Built-In Convenience

The superintendent's office, also used as a consultation room for staff meetings and similar functions, occupies one corner of the new building. Adjacent to this and along the front is the general office opening from the front entrance hall. Here the assistant superintendent of public works, the clerk, public service inspector and the supervisors of the Street, Sanitation, Sewer, and Park Divisions each have a desk. On the opposite side of the front entrance hall is located the men's locker and lunch room, and adjoining this, the men's service facilities. Each employee has his own private, full-length locker.

A small room at another corner of the building serves as the service, repair and storage room for parking meters. A room adjacent to the parking-meter room provides laboratory and testing facilities, as well as storage of outside testing and surveying supplies and equipment, for the field engineers working under the assistant city engineer. Formerly they had to use inadequate facilities in a small room in the basement of the city hall and an old voting booth located in the old construction yard. The next room serves as headquarters for the Park Division where all specialized equipment, such as ladders, tree-trimming equipment, power saws, and other tools are stored. This room has a wide, outside overhead door enabling a truck to back into the room to be loaded or unloaded; it provides storage for one of the park trucks.

Beyond the side vehicle entrance is located the stock room for general tools and supplies. A small office in one corner is for the garage and equipment supervisor. This location enables him to have close control over the stock room, gas pumps, repair work, and his other duties. An island adjacent to the stock room and 20 feet from the building contains two gas pumps and one fuel oil pump, all controlled by the stockroom clerk. Three 4,000-gallon gas tanks and one 1,000-gallon fuel oil tank are installed underground.

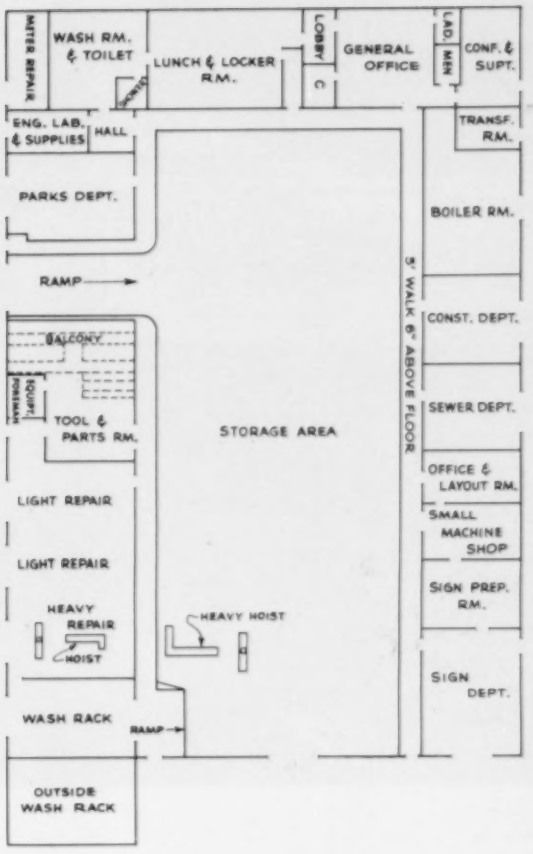
The clerk is charged with the requisition, receipt, and dispensing of all tools and other stockroom supplies, as well as gasoline and oil. He also repairs as much small equipment as time permits.

Adjacent to the stock room are two light and one heavy repair stalls, the latter equipped with an eight-ton Weaver hydraulic hoist. A separate outside overhead door for each repair stall enables equipment needing repair to be moved to and from the stall without moving stored equipment or sacrificing a large amount of inside storage space. These repair stalls have a trolley beam overhead, extending over the wash rack, enabling motors and other parts to be removed and taken to the wash rack for cleaning. A movable section over the heavy repair stall permits a chain hoist to travel in any direction over equipment in this stall. A dwarf partition separates the repair area from the wash rack, located immediately to one side. We also have an outside wash rack beyond the building and adjacent to this room. A steam jenny of 120-gallons-per-hour capacity at 80 to 100 psig serves both racks.

The transformer room and boiler

room are located on the opposite side of the building adjacent to the superintendent's office. These serve both the Public Service Building and the adjacent, newly constructed Police Department and Municipal Court. Each of the two fully automatic natural-gas-fired steam boilers has a minimum output capacity of 2,678,000 BTU per hour with an operating pressure of 15 psig. Each room in the garage contains thermostatically controlled unit heaters with blowers, except the offices and locker room, which have finned tube convector radiators.

Adjacent to the boiler room is a room for the Construction Division, followed by one for the Sewer Division, each with an outside-overhead door. These rooms provide adequate space to store all small and specialized equipment presently assigned to the divisions, plus room for receiving a truck to load and unload needed equipment, and for its storage during off-work hours. The Sign Department occupies the four rooms between the Sewer Division and the end of the building for office and layout room, small machine shop, sign-preparation room and sign storage. Equipment in the sign-preparation room includes a paint-stripping tank and an acid pickling or derusting tank with provisions for rinsing. A Binks paint-spray booth and a Model Mark III multidrying rack are also located in this room. The sign truck can enter the sign-storage room for loading, unloading and storage.



This floor plan of Wyandotte's new garage shows the basic layout and the location of the departments.

Hoist

A large 18-ton Weaver hoist, used for all lubrication as well as for the repair of any heavy equipment that cannot be handled in the repair area, is located in the large storage room adjacent to the repair stalls. Doors in each of the surrounding service rooms open on an inside five-foot sidewalk that surrounds the storage area on three sides, enabling an employee to travel to any part of the building without winding his way between stored equipment. Doors on both ends of the wash rack enable washed equipment to be driven directly into the storage area in inclement weather. The wash-rack and repair-stall doors can be closed and locked to isolate these operations from the rest of the building. The two overhead doors to the storage area are motor-operated, while all other overhead doors are manually operated.

The city took definite action to construct this facility, along with the adjacent Police and Court Building, in August, 1955, by adopting articles of incorporation of a Building Authority. This Authority had the power to issue revenue bonds and construct the buildings, after which they would be leased to the city until the bonds were retired. Then the land and structures would become the property of the city. The Authority retained Giffels and Rossetti, Inc., architects and engineers, to prepare preliminary plans and obtained an option on the property for the construction of the facilities.

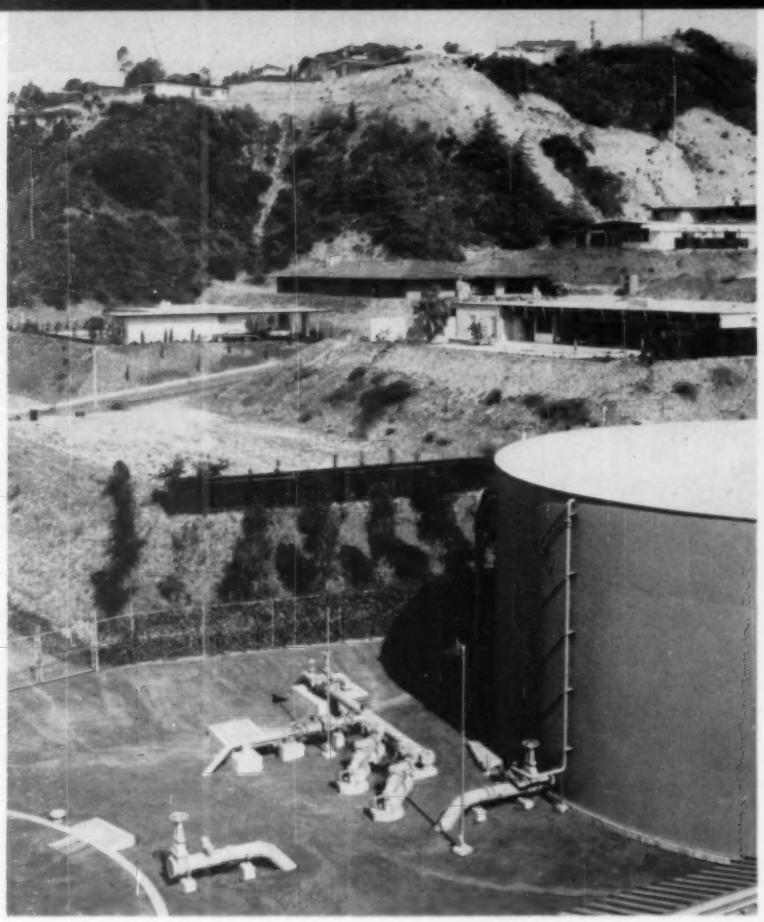
Restudy

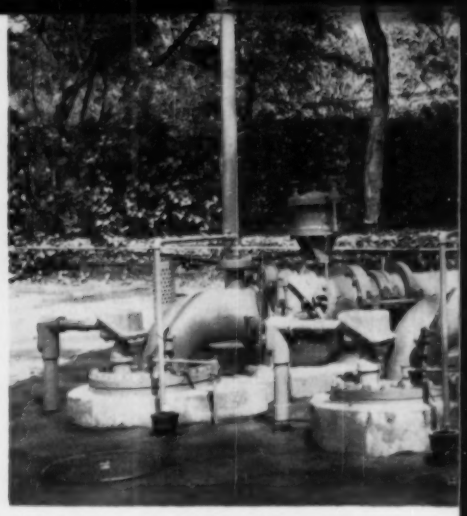
However, early in 1958, Mayor John E. McCauley requested the Council to hold in abeyance the proposed Building Authority Plan and to restudy the method of financing, because of the high interest rates on revenue bonds and the general economic conditions prevailing at the time.

As a result of the mayor's recommendation, the City Council decided to borrow the needed money for the project from the City Pension Fund at a reasonable rate of interest, and to handle the design and construction themselves. The Council, by resolution, appointed a Building Advisory Committee consisting of the city engineer as chairman, the police chief and the purchasing agent. This Committee acted as a coordinating body between the mayor and Council, the architects and the contractor in designing and constructing the buildings.

Preliminary plans for the Police and Court Buildings prepared under the Building Authority were reviewed and used, and final contract plans were completed by the architects for both buildings. The city awarded contracts for both buildings to Leo E. Kuhlman, Inc., on October 15, 1958. The garage, occupied by the city in January 1960, cost about $292,000.

After operating the new facility for almost a year, we are convinced that the building is both functional and adequate. It has saved considerable manpower and we have noticed a decided improvement in the morale of the men. As usual when looking back, we wonder how we ever operated with the old obsolete, dilapidated and scattered structures which had outlived their usefulness many years ago. ◄◄





This newly built station, adjacent to a private residence, contains three submersible pumps together with provision for two more units.

←

One new reservoir and booster station is located in an area where lots average $30,000 and houses an additional $125,000.

Beverly Hills terrain makes booster pumping necessary but, with high land values and expensive homes . . .

It Pays to Keep Quiet

By JOHN L. PERHAB*

A Health Department official and Water Department Manager John L. Perhab, the author, inspect the interior of a 6,000,000 gallon reservoir with the aid of a row boat.

Beverly Hills owns and operates one of the most modern and complex water systems in the area. While all our problems are not unique, we do face some unusual situations. For example, since we are one of the wealthiest cities in the world, on a per-capita basis, several of our newer installations are in neighborhoods where lot prices average $30,000 and houses an additional $125,000.

The geography of the area also enters the picture. We employ 12 service zones in the distribution system, with hydraulic grades ranging between 1,636 and 325 feet. Each service zone, except two, has its own reservoir and booster system. The two zones without storage facilities use hydropneumatic systems.

Under these conditions, pumping is a necessity. Nevertheless, quietness of operation and minimum interruption in service are primary requirements, and of course, the need to minimize all unsightly facilities that could depreciate land values is particularly important where movie and other personalities' expensive homes are adjacent to large pumping operations.

Water within the distribution system is boosted in steps from one reservoir to another as required. We employ 16 reservoirs having a total capacity of 32,000,000 gallons. Reservoir construction varies from con-

* Mr. Perhab is the manager of the Water Department of Beverly Hills, Calif.

Almost invisible, this deep-well submersible-pump installation in the heart of a residential section operates daily but bothers no one; this is an original source well.

ventional steel tanks to buried concrete reservoirs, completely hidden under parks or tennis courts. Our 15 pumping stations containing 47 pumps have a total connected horsepower of 3,880 and a sum capacity of 762 mgd. Many of these pumps are submersible units.

The department has had more than a quarter of a century's experience with submersible pumps. Since the first submersible installation was constructed in 1934, their use has grown to 22 units currently in service. Application includes booster and deep-well pumping, with sizes ranging from 60 to 125 hp. All are Byron Jackson pumps.

With this length of experience, reliability and economy have become matters of record, and as new additions are added to the system, we make no hesitation in repeating the submersible type of installation each time. All facilities constructed in the last ten years have used this type. All pipelines installed in recent years are cast iron, sized in conformance with the National Board of Fire Underwriter Standards.

While wells are controlled manually, practically all booster pumps operate automatically in accordance with the water level in the receiving reservoirs. All reservoir water levels, except three, are telemetered to, and recorded at, Water Treatment Plant One.

Similar instruments also transmit and record booster pump flow from five key booster stations as well as influent to the system from the Metropolitan Water District. The various system interconnections at Plant One are controlled remotely by the operators. Equipment employed includes Autocon, B-I-F Industries, Inc., Bristol, and Sparling. We use two function, tone and telestep principles to achieve the best balance of economy and dependability.

The department operates some 200 miles of pipelines in addition to the many wells, booster stations, reservoirs and other facilities located over a wide area including sections of the city and county of Los Angeles. Sixty employees, performing operation, maintenance and construction, staff the Department.

Two Sources

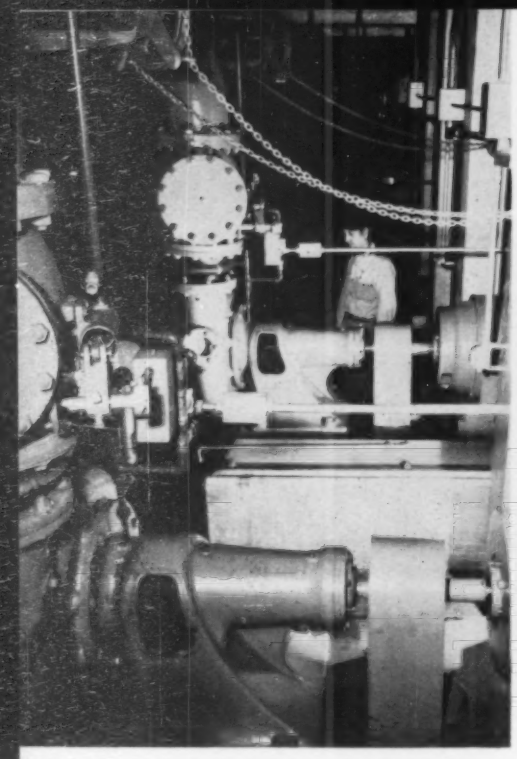
We supply about 78% of the annual demand from our own wells and obtain the balance from the Metropolitan Water District—Colorado River Source. The distribution during the peak months of the summer is about 50% from each source. Currently the 15 wells have a combined capacity of 9.2 mgd and Metropolitan Water District connected capacity is 19.3 mgd.

We believe the demands upon our system are unique. Maximum per-capita use is 417 gallons per day, average demand is 243 gpcpd.

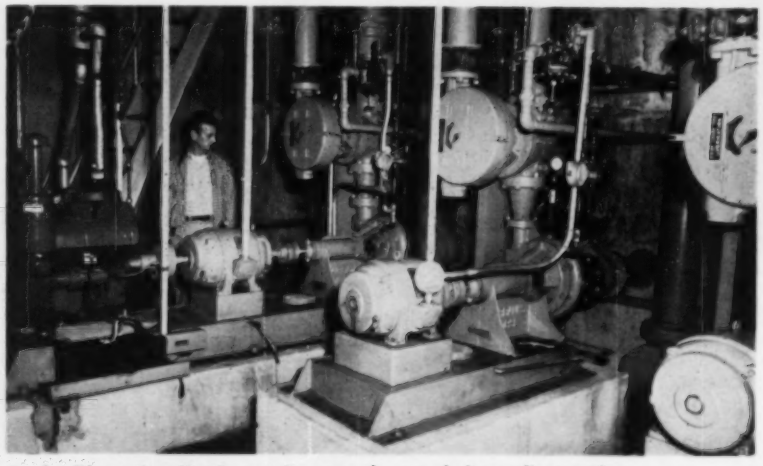
All well water receives treatment in one of two treatment plants. These plants employ rapid-sand filtration and lime softening, with the process including pre-chlorination, aeration, hydrated lime, ferric chloride, carbon dioxide and chlorine dioxide. Plant capacity amounts to approximately 14.5 mgd. Besides the two plants the department operates five chlorination stations.

Beverly Hills has a population of 31,800 people, and in addition we also serve 18,000 persons in the county area. Domestic services total 10,353; 8,030 in the city and 2,323 in the county. Fire services total 181.

Our estimated revenue for the current fiscal year is $1,100,000. Budgeted operating expenses come to $960,000, of which $340,000 is for personnel accounts. This year's contemplated capital outlay work has been set at $110,000. ◄◄



The new pump and motor arrangement eliminates the long shafts which had become a maintenance problem.



In the lift station Mr. Bryant inspects the coupled gasoline engine which starts automatically if the power supply fails.

The solution of maintenance and operational problems result in . . .

New Equipment for an Old Plant

By **FRANK PALOCSAY***
Havens and Emerson
Consulting Engineers

As part of an overall sewer and sewage treatment plant improvement, Dunkirk, N. Y., recently completed the job of standardizing its pumps and installing vacuum filters. These two items, in particular, result in lower maintenance costs and a substantial time saving for Allen Bryant, chief operator of the plant, and his men.

The original sewage treatment plant (vintage of 1930) contained four dry-well vertical raw-sewage pumps, with motors at ground level which connected to the pumps below by means of 35-foot shafts. In time, these long shafts became misaligned, showed excessive wear and were expensive to operate and maintain. We have now replaced these old units with new motors and new horizontal centrifugal, Fairbanks, Morse non-clogging pumps. Because the motors are mounted in the dry well with horizontal pumps, the new shafts are only four feet long. They pump from the wet well which is about 40 feet below grade and discharge vertically into two new Eimco Process Engineers Grit Separators with screw-type classifiers which remove grit and return organic matter to the sewage. New Healy-Ruff mercury-switch float controls start and stop the pumps in a predetermined sequence depending on the liquid level in the wet well and the flow of sewage to the plant.

Two of the new eight-inch pumps rate at 2,450 gpm, another at 3,500. The fourth, a ten-inch, can deliver 5,250 gpm and will find use only when the sewer system is saturated with storm water and infiltration. The total dynamic head on the pumps is 65 feet.

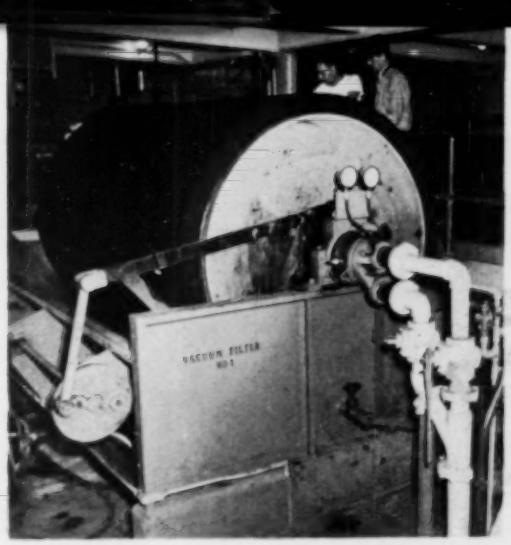
Lift Station

In the interest of standardization we installed three smaller centrifugal Fairbanks, Morse non-clog sewage pumps in the newly-completed west side (Point Gratiot) lift station. We believe that our men will be better able to maintain one brand of equipment than a variety. It will also be more convenient to keep a smaller parts stocks and should promote better service. Because the full 1.75-mgd capacity of the lift station will not be reached until more property develops, the off cycles are longer now than they will be later. Operating against 50-foot heads, two three-inch and one four-inch pumps, rated at 250, 350 and 600 gpm respectively, are capable of adequately handling future as well as present flows.

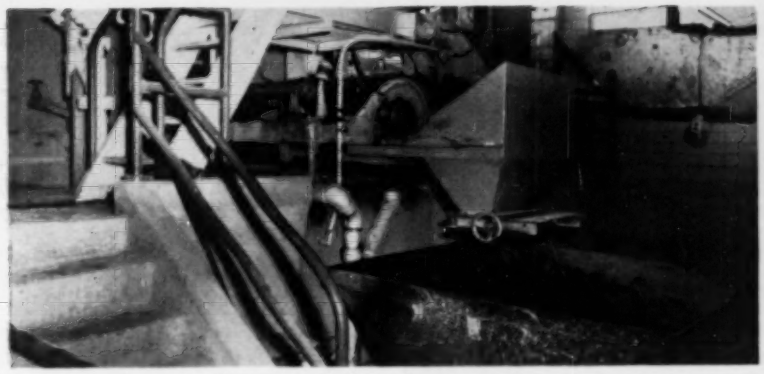
We coupled a standby, automatic gasoline-powered engine to one of the three-inch pumps in the lift station. When the electric power fails, this pump will start and operate to prevent flooding of the wet well. As the area served becomes more densely populated, another engine may be necessary for a second pump. An engine-driven generator provides emergency power to operate the cone valves and pump in event of power failure.

Because of insufficient sludge storage and digestion capacity in the otherwise adequate Imhoff tanks, we installed two new Eimco vacuum

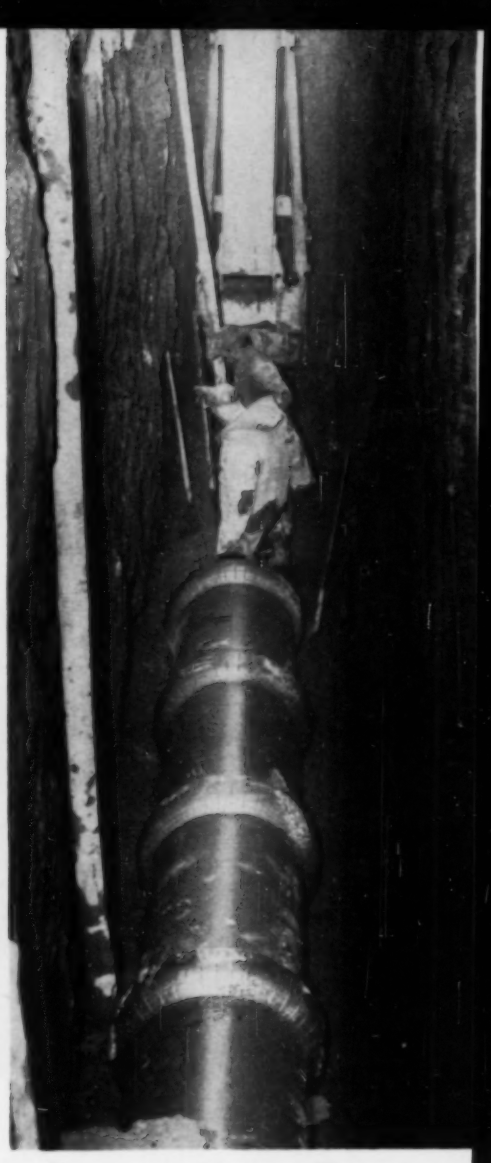
*Mr. Palocsay is acting as project engineer for the Dunkirk improvements.



The new vacuum filters made it possible to eliminate the sludge drying beds with their high cost of maintenance and operation.



Dry sludge from the filters is carried by the conveyor to the hoppers and then trucked away.



Laying extra-strength pipe in an 18-foot ditch, the contractor constructs an interceptor sewer which becomes part of Dunkirk's sewer-improvement program.

filters in the sewage treatment plant. They practically eliminate the use of the old sludge drying beds that required additional hand labor from the street department to help with the removal of the dried sludge. Interruption of street work and the inconvenience caused by the old method sparked the installation of the new vacuum filters. The glass-covered drying beds now dry only the Imhoff tank scum and produce small amounts of air-dried sludge for landscape soil conditioning.

Marlow sludge pumps draw off about 5,000 gallons of sludge daily at the rate of 1,000 gph. After treating the sludge with ferric chloride and lime, we dehydrate it to 70% moisture content on the new Eimco filters and place it on a conveyor which dumps automatically into hoppers. Plant personnel truck it to dump areas near the site of the treatment plant at regular intervals.

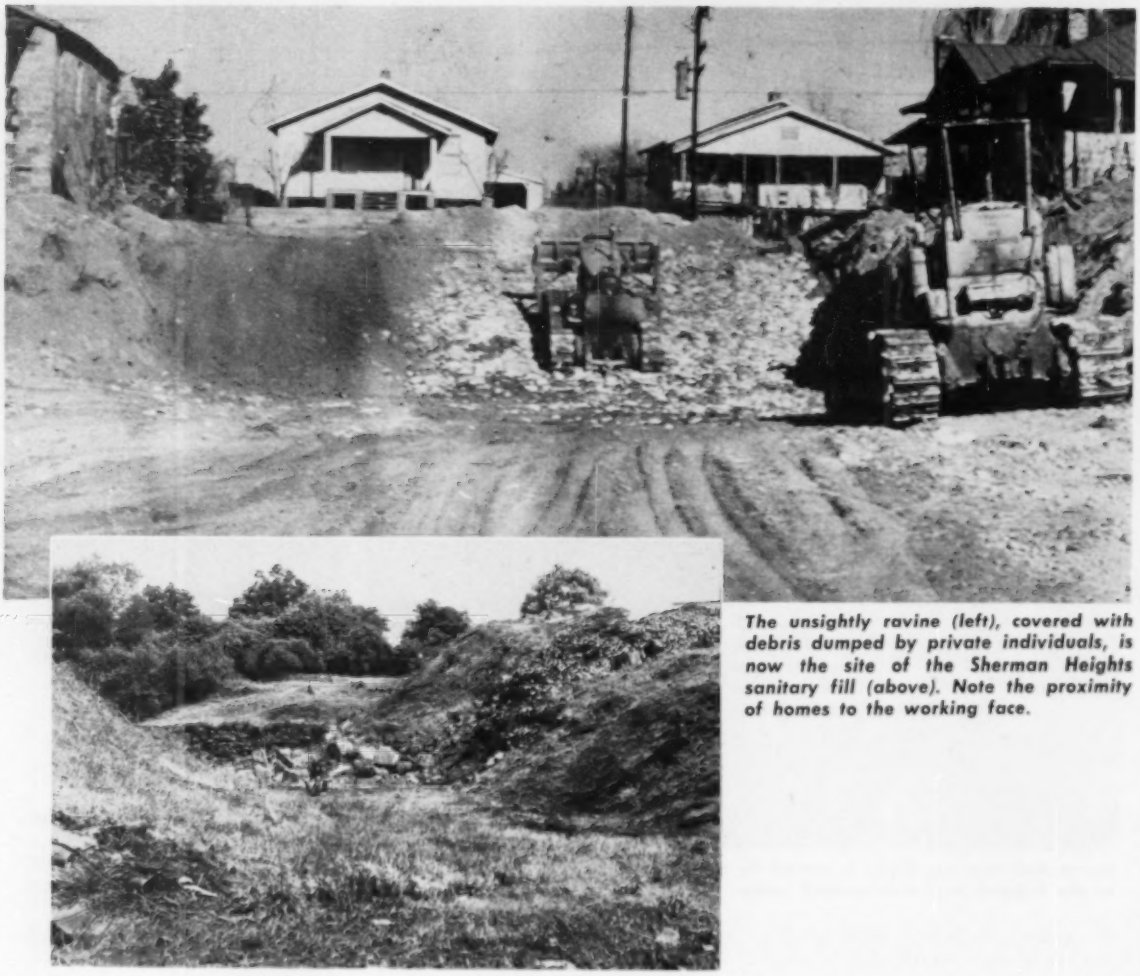
A new Wallace & Tiernan evaporator and two 1,000-pound-per-day chlorinators treat the sewage under variable conditions. Under ordinary circumstances the effluent receives a dose of chlorine before it passes into the 1,726-foot-long cast-iron discharge pipe which ends at the bottom of Lake Erie. When more than 5.5 mgd, the capacity of the modernized plant, enter through the sewer, the excess receives a shot of chlorine while by-passing the plant.

Other Improvements

In addition to the plant modernization and lift-station construction, we also installed several new interceptor sewers, including regulators and by-passes to Lake Erie, to be used when the sanitary sewers become overtaxed by surface water, storm water infiltration and combined sewer loadings. A program of storm-drain construction to remove surface and storm water from overtaxed sanitary sewers and to eliminate flooding is presently in progress. One project totaling more than $1,250,000 is nearing completion. The design for a second $750,000 project has been completed and the project will be built as soon as financing can be arranged.

Havens and Emerson, consulting engineers, designed and supervised construction of the entire sewer improvement project under Harold T. Stumpf, city engineer.

Presently, Dunkirk is realizing the benefits of the construction completed to date. When all projects are completed, better sewerage and a cleaner Lake Erie will result. ◄◄



The unsightly ravine (left), covered with debris dumped by private individuals, is now the site of the Sherman Heights sanitary fill (above). Note the proximity of homes to the working face.

Sanitary Landfill Proven Under Fire

Birmingham, Ala., reopens two old dumps as sanitary fills and convinces the public of their value, despite preliminary opposition

By **NEAL McRAE**, Superintendent
Streets and Sanitation

Birmingham has run the gamut of refuse-disposal methods, encountering both good and bad experiences with the open dump and the sanitary fill. In going through this transition we proved to ourselves that we can operate a sanitary landfill under the most adverse conditions, provided that we take the proper steps in advance of operation and use the proper methods of operation at all times.

Court rulings in our favor and inspections by the State Department of Public Health and the U. S. Public Health Service back up this claim. But most important, residents living near our landfill sites agree that we are doing a good job and are happy about our land-reclamation program.

In 1927, Birmingham built three small incinerators having a combined capacity of 200 tons per day. During 1941 we closed two of these to salvage the metal for the war effort. One remained in service to dispose of dead animals and the downtown

Large loads of refuse, such as that hauled by this Pak-Mor Lo Boye, are quickly compacted and covered.

garbage. This unit still handles about 20% of our garbage; the rest we dispose of in two sanitary fills.

When we closed the incinerators we started three garbage dumps, but without equipment. These were of the progressive-fill type, with waste from coal washers used for cover. We made no attempt to seal the face of the dump. This method of disposal kept us in constant trouble, for the dumps had a very bad odor, served as breeding places for rats and flies and in general were a nuisance to the community. Pressure from citizens in the vicinity of each dump forced us to close all three dumps and move to more isolated locations. This increase in hauling distance added considerably to our disposal costs.

In September 1955, we appealed to the State Health Department for help in solving our garbage-disposal problem. They in turn contacted the U. S. Public Health Service and Leo Weaver and Clyde F. Fehn from the USPHS who made a study of our problem. At the time of their study we had one small bulldozer at each dump and the part-time use of a dragline; the dragline was in use at all the dumps.

The Right Start

As a result of these studies and reports, we were able to purchase two new Caterpillar D6 tractors with bucket attachments. For the first time we found ourselves able to operate a true sanitary landfill. Our methods improved with experience, but the isolated location of the fill sites still meant exceptionally high hauling costs. About one year later, with the backing of our new commissioner, we decided to move back to the old sites which had been abandoned under pressure, thereby cutting hauling distance by one-half.

The Airport landfill consisted of a ravine about 3,000 feet long, 1,000 feet wide and 40 feet deep. We opened drainage ditches on each side to take care of surface water and started operation. However, water trapped beneath the fill started leaking from the edges indicating a spring. To intercept this water we laid 3,000 feet of eight-inch terra cotta pipe in diagonal ditches across the face of the fill, leaving the joints open. Pipe covering consisted of

Each collection crew, consisting of a foreman and four laborers, picks up an average of 1,200 cans a day. This Gar Wood body on an International truck is typical of Birmingham's modern fleet.

This ¾-yard shovel, here excavating material at the Airport fill, works at both of the sanitary-fill sites as it is needed.

about one foot of stone followed by asphalt roofing and a minimum two-foot clay seal. These drains were laid to the foot of the fill and, after we had received some complaints about odors, were connected into sealed joint pipe that carried the water to an existing sanitary sewer. These drains dried up the area and all odors disappeared.

Court Action

Residents in the area brought court action against the city while we were installing the drains but the court ruled that our operation was being carried out in a sanitary manner.

Shortly after this, we reopened the Old Powderly landfill and again were attacked in court by the area residents, some of whom lived only 150 feet from the operation. In this case, the Alabama Supreme Court ruled that our operation was not a nuisance nor a health menace.

In July 1959 we were offered the use of a ravine that was most desirable because of its location in the western section of the city. Close examination showed that the ravine contained a considerable amount of surface water after rains, in addition to seven small springs which flowed the year around. After discussing the situation with the County Health Department, we decided to lay 15-inch pipe the length of the ravine with an inlet at the upper end to catch drainage water, and a manhole at least every 200 feet, raised to finished grade. We then laid cross drains to each point indicating a spring, placing the lines deep enough to prevent water from entering the garbage. All the cross drains, consisting of six-inch terra cotta perforated pipe laid on a bed of crushed stone and covered with asphalt roofing and sealed with at least a foot of clay, were connected to the 15-inch pipe at the manholes.

We completed all this work prior to hauling garbage to this site. This preparatory work paid dividends for we have experienced no water or odor problems, although we have dumped within 50 feet of occupied houses. The neighbors are pleased that we are reclaiming their land and getting rid of an unsightly ravine. This site receives about one-third of the city's garbage and should last about three years.

Ample Equipment

It takes more than determination to conduct a sanitary landfill properly. Equipment is essential. We now have five Caterpillar units; a Traxcavator and a D7 tractor with bulldozer at the Airport Landfill, one Traxcavator and a D6 tractor with dozer blade at the new Sherman Heights landfill, plus an extra D6 with dozer blade for standby. We also have a 7½-yard John Deere scraper at the Airport site plus a ¾-yard Northwest shovel for use at either site. This machinery may seem to be on the heavy side but it pays dividends through better compaction and a more solid fill.

Sufficient manpower is also important. The Airport Landfill personnel consists of three equipment operators and one night watchman. We use two operators and a night watchman at the Sherman Heights site.

Preparation

In addition to the usual steps recommended for good operations, we find that before operating a landfill the responsible authority should:

- **Remove all trees and stumps.**
- **Install drainage ditches or pipes to remove surface and underground seepage water. Take care to prevent water from the garbage entering these drains.**
- **Make provision for adequate cover material.**

Operating tips, in addition to those recommended, include:

- **Operation and maintenance should be under the direction of a sanitary engineer.**
- **Dump garbage at the bottom of the fill (we use the progressive ramp method) and compact it by pushing it up the face of the fill rather than down.**
- **Do not permit scavenging.**
- **After completing the fill, follow through with a maintenance program until the fill becomes stable.**

Ours is a big operation but the same principles apply regardless of size. In 1959, the Sanitation Department collected and disposed of 170,000 tons of garbage, 8,677 loads of brush and rubbish, 45,000 large container loads, and 46,267 dead animals.

Birmingham's collection equipment consists of 28 packer trucks, eight open-body trucks for brush and rubbish, and ten trucks with Dempster Dumpster hoists to service 400 containers. We collect garbage twice a week in the residential areas, from two to six times per week at business establishments, depending upon rate of accumulation, and every night except Sunday in the downtown area.

Each garbage crew consists of a foreman and four laborers, servicing an average of 12,000 people. Each crew picks up an average of 1,200 cans per day. Our 1959 per-capita cost amounted to $2.46 for collection and $1.44 for disposal. Collection cost on a tonnage basis amounted to $4.41. Since collection costs are considerably below the national average of about $4.00 per capita we feel we are doing a good job in this area too. ◄◄

On streets requiring little excavation this Caterpillar grader loosened and windrowed earth for removal by a loader.

Paving By Petition

Fort Collins, Colo., improves its unpaved streets through an improvement district

By **G. J. WEISS**
City Engineer

As the Barber Greene paver applies the surface course to one side of the street a Buffalo-Springfield tandem roller applies the final compaction to the opposite side.

Property owners representing only one third of the frontage on any one street in Fort Collins may start our paving machinery in motion by petition. All property owners within such a district will pay for the work on an assessment basis.

But the 33⅓% cannot force their desires upon the majority. Within a specified time, the owners of not less than 51% of the frontage involved can file a remonstrance petition to have their block or blocks excluded from the improvement district, if they wish.

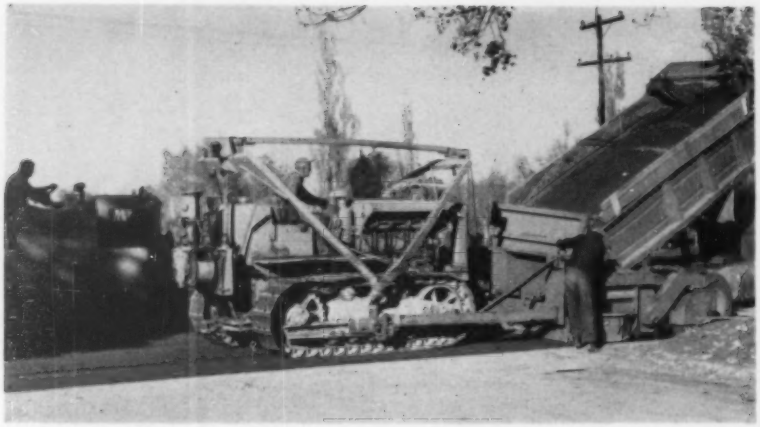
Under the provisions of this ordinance, the city council, last year, consolidated 139 petitions into one, to form one improvement district. The "Consolidated Improvement District No. 55" enabled us to pave 37 blocks on 16 different streets. This amounted to approximately 2.5 miles. Street width varied from 25 feet to 60 feet.

Utilities

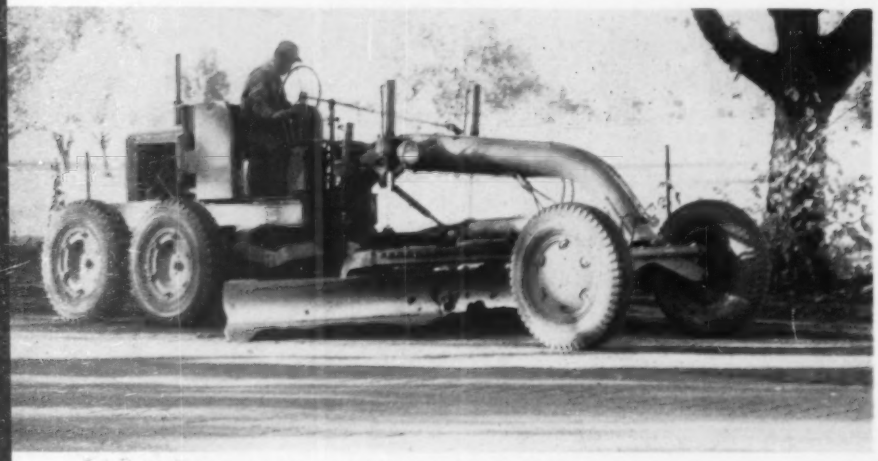
Prior to any street improvement work, we install all necessary water, sewer or gas mains, and provide "stubbed" services from these utilities to all property not now using them but which may in the future. This eliminates cutting the pavement later and destroying its attractive appearance. We take pains to see that backfill for these utility trenches is thoroughly compacted with good material.

Our normal paving design for residential streets consists of a four-inch compacted hot-mix asphalt. Under certain load and soil conditions we use increased thicknesses. Also if an existing cold-mix asphalt street is in good repair and conforms to grade we often utilize it as a base and simply place an overlay upon it.

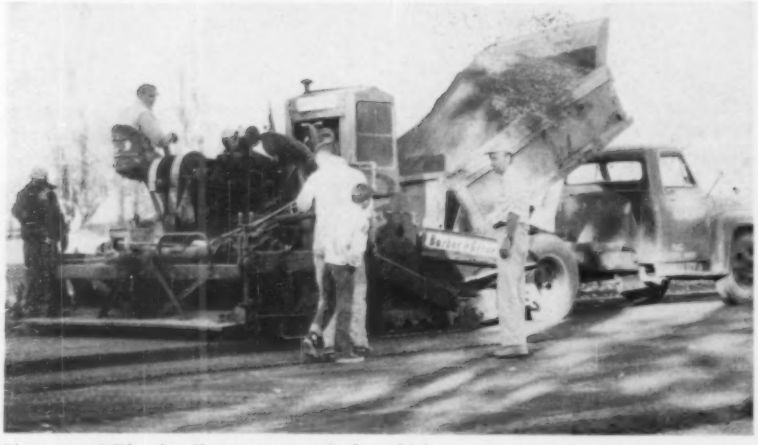
Last year we used soil cement for the first time. The streets involved carry heavy traffic, have a poor sub-



A Jersey Spreader, pushed by a tractor, applies the four-inch lift of soil-cement, while the nine-wheel Buffalo-Springfield rubber-tired roller in the background compacts it.



Following compaction and prior to the application of the second lift, this Allis-Chalmers grader "scalped" the top of the first lift, removing excess material.



The second lift of soil-cement, two-inches thick, was put down by a regular paving machine.

grade soil and a high water table. Our original design called for a six-inch gravel-earth base topped with three inches of asphalt. The street is 50 feet wide. Since the cost for this work ran uncomfortably high, we asked for alternate bids using soil cement.

Soil-Cement Design

The soil-cement design specified that the mix be prepared in a central plant. We required a cement content of 4% by weight of soil (gravel, sand and earth) with the stipulation that a seven-day compressive test be 400 psi or greater. Water content was held between optimum and 2% above optimum as determined by AASHO designation T-134-45. Specifications called for a six-inch compacted thickness.

On those streets requiring little excavation, a blade scarified and windrowed the earth and a loader deposited it into the trucks for removal.

Where excavation was large, ten-yard tractor scrapers hauled the earth to stockpiles for use as fill at a later date.

We require that curb and gutter be installed prior to any paving in an improvement district and use the "Hollywood" or drive-over style in most cases. However, we switch to the vertical-face curb in parts of town where it matches the existing curb. We install sidewalks at the option of the property owner.

Our concrete specifications call for a 5½-bag mix admixture for air entrainment, and a comprehensive strength of 3,000 psi in 28 days.

Next the base material is placed, moistened, shaped and compacted. A self-propelled rubber-tired roller is used for compaction. Then a prime coat of MC-1 cut back asphalt is applied at the rate of 0.25 of a gallon per square yard.

Surface Course

A Barber Greene paver applies the hot plant-mix asphalt surface course in widths of 10 and 12 feet. Trucks deliver the mixture to the job at temperatures between 225° F and 300° F. A ten-ton steel-wheel roller provides final compaction.

The contractor placed the soil-cement base in two lifts. The first four inches thick was compacted by a self-propelled rubber-tired roller. A motor-grader "scalped" the surplus material from the surface, then the final two-inch lift was applied, compacted first with the rubber-tired and then by a steel-wheel roller. Field density tests indicated 97% or greater compaction with no

Finishing touches to the soil-cement paving consisted of two seal coats with a Littleford distributor (above) applying the bituminous material and a Hi-Way spreader (right) laying down the chips.

evidence of a compaction plane between the two lifts. We felt two lifts would permit better compaction and the thinner second lift allowed the use of a paving machine to produce a smoother surface.

Seal Coating

Specifications called for a bituminous application to the moist pavement soon after compaction was complete. Due to impending fall storm conditions we omitted this curing application and placed the first seal coat consisting of RC-2 asphalt, applied at the rate of 0.25 of a gallon per square yard, and covered it with 25 pounds of ⅜-inch chips per square yard. A second seal, applied two weeks later, consisted of RC-3 asphalt applied at the same rate and covered with 15 pounds of ⅜-inch chips per square yard.

We assess property on the basis of the number of feet they have fronting the paved street. They pay actual construction costs, plus the district costs, distributed as follows:

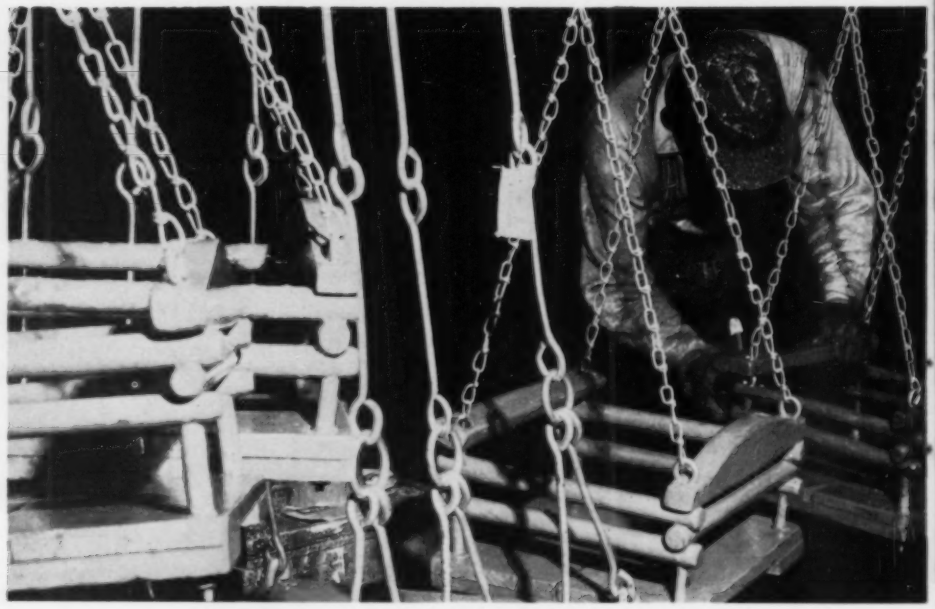
Engineering	**5%**
Legal and publication	**5%**
Bond discount	**5%**
Interest during construction	**6%**
Total	**21%**

To finance the improvement district, the city sells special-assessment bonds at 6% interest. These are payable in ten years but are callable at any time. Any property owner who wishes to pay the full amount of his bill prior to certification of the assessment roll by the county treasurer receives a 5% discount on his assessment. Payments are divided into ten equal installments.

The actual cost of the asphalt pavement (four-inch base, two-inch surface) amounted to $1.34 per square yard. The actual cost of the soil-cement pavement came to $1.42 per square yard. The cost would have been about $1.35 per square yard except that many soft subgrade areas had to be excavated and filled with pit-run gravel.

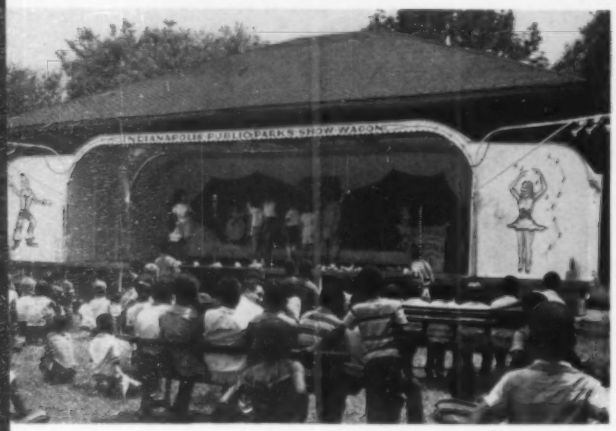
The street-improvement-district method of paving enables property owners to enjoy paving in front of their homes. They need no large cash outlay since the financing is part of the improvement district.

We expect to outgrow this method in Fort Collins in years to come. We now require all new subdivisions to install their own curb, gutter, sidewalk, and paving under city specifications. Nevertheless, the street-improvement district will have served its purpose well until such a day appears. ◄◄



Painters brighten up all the swings and slides during the winter

Below—
Our home-made show wagon provides the setting for children's plays all summer long.



Park Maintenance Fundamentals

. . . as practiced in Indianapolis, Ind.

By A. J. THATCHER and CHAS. BROWN*

Without maintenance, the best park system in the nation soon dwindles to nothing. The acquisition of parks is of course vital, but keeping what we have is even more important, and unfortunately less glamorous.

Our maintenance responsibilities include 78 neighborhood playgrounds, 15 major parks, six golf courses, 15 community centers, seven swimming pools, and 90 miles of parkway and boulevard roads.

We have divided the city into four, approximately equal, sections for maintenance purposes. Each section has a supervisor who reports to the maintenance superintendent. Maintenance is one of six major divisions of responsibility under the park director, who reports to the Park Board composed of four unpaid citizens and the mayor as an ex-officio member. A new $2,500,000 administration building near the entrance of Riverside Park serves as the center of operations and headquarters for equipment. Each supervisor, however, has a storage building in one of his area's parks for the smaller pieces of equipment such as mowers and tractors. For other than minor repairs this equipment goes to the main garage.

Our slogan for playground equipment continues to be: "Paint everything every year." As soon as school begins in the fall, we start removing playground equipment from the parks and playgrounds to our central maintenance shop for cleaning and storage. Of the 36 year-round men in the central shop, three painters start on the winter-long task of freshening up the swings, slides and other apparatus. Whenever they discover a split step, a splintery board or any other type of hazard, they mark it for the attention of one of our six permanent carpenters who makes the repair. Although its first cost is somewhat higher, we have learned through experience to use oak rather than pine or fir for all repairs or replacements of wooden

* Mr. Thatcher is Director of the Indianapolis Park Department; Mr. Brown, Maintenance Superintendent, Riverside Park, Indianapolis, Ind.

When spring arrives, the workmen install playground equipment.

parts, as it lasts several times as long as the softer woods.

Some of the neighborhood playgrounds are on private property. If a group of mothers requests equipment on three or four adjacent vacant lots, we first obtain permission from the owners. Then, with the blessing of the Park Board, we install a few swings and a slide as well as doing any necessary grading. The final touch on these officially unsupervised play areas is a modest sign with the owner's name plus a notice from our department that the city will not be liable for any mishaps. Neighborhood mothers usually agree among themselves to share the supervision of play hours. These little playgrounds are a valuable asset to the system, filling the needs of the toddlers who might otherwise be too far from a major park to enjoy its benefits.

Plumbing Fixtures

Even though we lock all park rest rooms for the winter, we remove all stools, urinals, sinks and drinking fountains, tagging and storing them at our central building. Our plumbers inspect and repair those which need it. Although it costs money to remove and reinstall these fixtures, it does give our personnel an opportunity to check thoroughly these items and make repairs under normal, rather than emergency conditions. We also buy repair parts and replacements in volume, thereby making some unit saving.

Six golf courses, all but one of which have 18 holes, make up a substantial proportion of the 3,100 acres of grass we must mow. Worthington gang mowers, pulled behind Minneapolis-Moline and International Harvester tractors, do the bulk of the weekly mowing. Our late purchases include Goodall 21-inch rotary mowers to clean up around trees, shrubs and other obstacles. Each golf course stores this equipment at the site. In the past some of this equipment was accidentally interchanged while being repaired at the central shop even though the equipment was numbered. We solved this problem by specifying a distinctive color of equipment paint for each course. One course has all white mowers and tractors; another course, all red, etc. Repainting is done as needed, not yearly.

We used to construct our own diving boards for the swimming

Almost 90 miles of park roads and boulevards require sealing every third year.

Floats travel 'round and 'round the remodeled speedway trailer.

pools, but found that no matter how much care we took, they would warp. We now buy finished kiln-dried maple boards from various playground-equipment companies and are able to use them for an average of seven years. We paint each pool every second year, using our own painters. Each of the seven pools employs ten operating people for a three-month period.

Plants

We grow all our own shrubs, flowers and plants (except our lemon and banana trees and other rare plants) in a greenhouse and nursery which has recently been enlarged. A permanent 18-man crew plants, fertilizes, and grooms the plants all winter to assure spring readiness for transplanting. The nursery overlooks our famous Sunken Gardens, a nation-wide attraction.

Because we were buying at one time an almost completely new set of chairs and tables for each of the 16 community houses every season, we now design and build durable benches which replace both chairs and tables. They are constructed of two two-by-eights, ten feet long, placed side by side on well-braced supports so that the tops are 18 inches high. We paint two checker boards on benches, positioned so that the players can straddle the bench, facing each other on opposite sides of the boards. We have found these to be practically indestructible, needing only occasional painting.

Erecting temporary benches for ball games used to require an entire day's work for two men with one truck. Removal took a like amount of time. To leave these benches standing invited thieves. In addition, they were often hauled to private fields for games. To correct this situation, we stopped furnishing benches to private parties and are now in the process of installing them permanently at each of our ball fields. We support a ten-foot two-by-ten, 18 inches from each end, with three-inch-diameter ste l pipe set in concrete. On occasion we have substituted comparably strong channels or angle iron for the pipe. We then weld strap-iron to the supports and bolt the wooden membe down. These benches are placed in two rows, one behind the other, in back of the first and third base lines. A winter coat of paint prepares them for the next season.

Show Wagon

A house-trailer fire several years ago provided the opportunity to make a stage for the recreation group. We bought the remains of the trailer for practically nothing. Our carpenters rebuilt and remade the trailer into a "show wagon" which is 38 feet long, 16 feet wide (when two four-foot extensions are expanded) and eight feet high. This unit travels to a different park every day during the summer for shows that recreation groups put on. It contains a small dressing room at each end, lights, and a public address system. After the performance a four-foot section of the stage folds upward to become a side of the trailer, and the other four-foot side with its canvas expansion cover slides toward the center to make the width of the entire trailer only eight feet, allowing it to be pulled on the streets as a legal vehicle. Fold-down jacks prop the expandable sides for

A street department L. W. Adams blade aids snow removal on a boulevard.

uniform support on uneven ground. In a matter of minutes one man can prepare the trailer for either stage use or travel. We estimate that our total expenditure for materials did not exceed $1,500 for this extremely popular item.

When the recreation department realized what our talented group of maintenance carpenters could do, they pressed them into service on several other projects, the most interesting of which was a flat-bed trailer on which was reproduced a miniature 500-mile speedway. With an old electric motor, two pulleys and our maintenance knowledge, we built a movable oval track. Youngsters under recreation department supervision constructed miniature cars which were then connected to the moving track. This replica race created a sensation when it appeared for the first time in our Memorial Day parade. Since that time the trailer has been remodeled and remodeled again to provide a moving setting for miniature circus animals and Christmas scenes.

All our 90 miles of parkways and boulevards originally consisted of an eight-inch aggregate base with an asphalt double seal on top. Although truck traffic is prohibited, the increase in passenger cars, poor drainage, service cuts and time have taken their toll. For many years we have been resealing these roads every third year with 0.3 gallons of RS-2 emulsified asphalt and 30 pounds of pea-gravel or ⅜-inch stone. The cost of repairing service cuts became particularly annoying because developers built row after row of houses adjacent to the boulevards.

Realizing that our sealing program was not upgrading these thoroughfares as fast as necessary, we started four years ago on a hot-mix resurfacing and drainage program. To date we have resurfaced 12 miles and expect to let a contract for three additional miles this year at an estimated cost of $81,000. This will be financed from the $379,390 which the park department expects to receive from the state gas tax funds as its share of road construction and maintenance.

We will continue the sealing program on the remaining mileage each year until all resurfacing has been completed. Sealing is done by our maintenance personnel with the aid of a 750-gallon distributor (which we expect to trade in for a larger one this year), Buckeye Spreaders, one Huber-Warco and one K-T-19 Buffalo Springfield rollers and an Elgin sweeper. The sweeper in addition to picking up excess sealing aggregate, operates every day of good weather on the boulevards, parkways or parking lots. A Pettibone-Mulliken Speed Grader and a Galion motor patrol complete our street-maintenance heavy-equipment list.

The Indiana legislature is currently considering a Metropolitan Park bill to extend the bonding power of the park department to include all of Marion County. The purpose of the bill to is assure parks for the future citizens of this expanding community as it outstrips its boundaries and spills over onto the adjacent rural property. Whatever the outcome, we know that our vibrant park maintenance division will continue to take exceptional care of the facilities for which they are responsible. ◄◄

Attack-Warning System Carried to Each Home

NEAR may be the watchword for a proposed Civil Defense attack warning system. This system will utilize power lines to carry a warning signal from a warning point to every home throughout the area or nation. "NEAR" is the shortening of National Emergency Alarm Repeater.

With this proposed system, the signal created is within a power system and converts a small portion of the normal 60-cycle current to the 240-cycle warning. The signal may be repeated from one power company or system into adjacent power systems. Thus it is possible to send a warning signal throughout the nation in approximately one minute, using only the power lines to create and transmit the signal from a single warning point. In addition, it is possible to send a signal that will be restricted to an area of approximately 1,000 square miles and not warn the entire nation. This might be of value for local disaster warning.

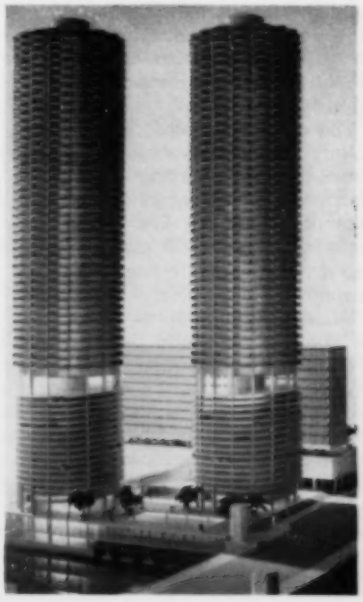
An alarm that plugs into any 110-volt AC outlet in the home is used to warn the homeowner of an impending disaster. This instrument is approximately 3″x3″x2″ deep. It may be secured to the wall outlet to prevent its being knocked out or removed. When a 240-cycle signal of ten seconds or more is received in the home over the power line, the alarm will sound for about 50 seconds and then shut itself off. If the signal is still on the line, the alarm will again sound after approximately ten seconds.

Special coded receivers may also be used that will permit alerting key personnel only and will not sound the home alarm. Also functions such as turning on sirens, street lights or similar devices may be performed by this system. ◄◄

Tallest Apartment Buildings

Something new in urban land use is establishing fresh precedents in Chicago. The $36,000,000 Marina City center, which will have the two tallest apartment buildings in the world, is currently under construction. The unusual structures consist of two 60-story, cylinder-shaped skyscraper dwellings. The lower 20 stories will be a spiral ramp for auto parking. The upper 40 will contain 896 apartments.

The Marina City project, a block-square undertaking, will take two years to complete. It will consist of the twin apartment buildings plus a ten-story commercial structure, shops and recreational facilities, a 1,250-seat theater, a marina for 700 boats, year-round swimming and skating and similar facilities. The site is located on the north bank of the Chicago River between State and Dearborn Streets on the edge of Chicago's Loop. ◄◄



Boston Speeds Accounting With Electronic Computer

By **JOSEPH P. LALLY**, City Auditor, Boston, Mass.
and Auditor of the County of Suffolk, Mass.

Thousands of man-hours of labor were saved when the 6% state withholding tax, retroactive to January first, was passed in mid-February. Calculating the necessary new deductions for 22,000 city employees would have been a lengthy job with "conventional" machines. This is described later.

This was only an item for our Remington Rand Univac 60 punched-card electronic computer. It has also streamlined appropriation accounting.

Once three weeks behind, we are now right up to date on the monthly statements for each city department. Assessment work has been speeded 30 to 40%.

When a decision is made to buy goods or services, the funds available must be encumbered. The balance card for each account shows six items—total expenditures, unencumbered balance, unliquidated encumbrances, appropriation credits, appropriations, and the unexpended balance.

The order goes to the vendor. His invoice, in turn, comes to our office, a clerk pulls the encumbrance card and punches in the amount of payment. The Univac then increases expenditures, decreases unliquidated encumbrances, decreases unexpended balance, and, if the invoice differs from the amount on the purchase order, increases or decreases the unencumbered balance figure—all at high speed.

The computer saved thousands of dollars in overtime work—about 250 hours in the tabulating department alone, to say nothing of payroll and other departments. We had to remake a set of 22,000 master cards, and it was all done in one quick pass through the computer.

Beginning with gross salary, we had to deduct federal tax, and the retirement contribution (we have 4% and 5% plans). This gave us a subtotal, from which state dependency (akin to social security) was deducted. This produced the taxable amount, which was multiplied by 6% to produce (after subtracting the resulting state tax) net pay.

The job was complicated by the fact that the tax was retroactive to January 1, so that six weeks of double deductions were needed. Credit Union contributions could have been another headache, for there weren't enough columns in the punched card—the Credit Union column on our report form could only go to $9, and the CU wanted provision for car payments.

The City of Boston now knows more about its appropriation accounting and handles payrolls faster now that it has an electronic computer in the auditing department.

Automatically, the computer combined the 4% retirement column with the 5% column, and shifted the Credit Union figure into the old 4% column, where there was enough room for figures exceeding $9. All this was also accomplished in the above-mentioned single pass through the computer.

In routine payroll work (we pay 18,000 people weekly, 4,000 monthly) we have taken full advantage of "card stretching" to get all the needed information into just one weekly detail card for each employee. With the help of Univac specialists, we've "stretched" the 90-column card to 102 columns.

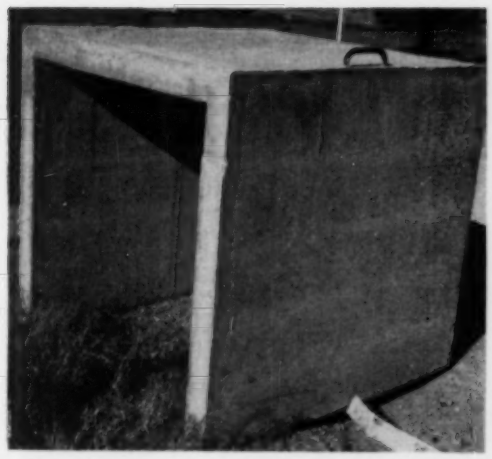
From a single deck of cards we run off a treasurer's draft statement and send it, along with the checks (again written from the cards) to the treasurer's office. There, they are run through a signing machine—and that's that for the week or month.

Summary Card

We also have a summary card for each employee, and from it run off quarterly and annual summaries of income and deductions to date. In July, there was a general pay raise and the computer saved a great deal of time and money in re-computing federal and state tax deductions and pension contributions.

The assessing department sends out 120,000 real estate bills a year and 20,000 personal property bills. In this work we've eliminated five steps and speeded the whole process by several weeks.

In the assessment area, we're doing 30 to 40% less work manually, and we expect to cut the clerical work load by about 60%. ◄◄



A precast culvert side and top section, made by the street department, includes lifting handles.

Foreman Porter and City Manager Uzzle inspect the poured-in-place invert on top of which the precast section will be placed.

Photos by Luci Uzzle

Do It Yourself and Pay As You Go

. . . enable Dunn, N. C., to provide necessary improvements at bargain prices

By **A. B. UZZLE, Jr.**
City Manager

One famous political leader once observed that "the trouble with pay-as-you-go is that you don't pay and you don't go." In Dunn, we believe in going. We also believe in paying as we go. We don't always believe in doing the job ourselves but sometimes we have to.

For example, our water-main construction program required a large dose of do-it-yourself to be completed. In 1957, the North Carolina Fire Insurance Rating Bureau studied our water distribution system and recommended the installation of 22,100 feet of 8- and 12-inch mains with appurtenant fire hydrants and valves. Although we realized that our $90,000 capital-improvement-fund cash on hand would fall short, we advertised for bids. The low bid indicated that the cost of materials alone was $90,000 plus another $42,000 for labor, equipment rental, etc.

We could not afford to let this bid without a bond issue, and we knew that our people were in no mood to approve any more bonded indebtedness. So we evaluated the possibility of buying the materials and doing the work with our own forces. Our existing equipment included a Model 300 International tractor with a Henry backhoe and dozer blade attachments for digging and backfilling. Several men, already on the payroll, had had previous experience in pipe laying. They could not, however, be used full time on the water-main project without neglecting their normal duties; so we hired two temporary laborers to work with our other employees on this job, paying them out of current revenue.

By extending the completion date on this water project, we were able to do the work with our own forces and equipment for a total outlay of only $100,000—do-it-yourself saved approximately $30,000. Pay-as-you-go saved an additional $29,000, which would be the interest on $100,000 at 3% for 25 years. Of course this doesn't consider wear and tear on the city manager but who can set a price on that?

Our men easily installed the Keasbey and Mattison Company asbestos-cement pressure pipe, as well as the Mueller valves and fire hydrants.

Better Fire Protection

The result is that we have better fire protection, due to the increased water pressure and better flow characteristics, at a total saving of $59,000. This project wiped out our capital-improvement fund, but it is even now being rebuilt to finance future water and sewer improvements.

Compatability of storm-sewer construction with pay-as-you-go financing requires solutions to the problem that sometimes depart from the nor-

mal. In one program several years ago five miles of paving were laid, to take advantage of a cheap price from the low bidder, although only five blocks had been originally contemplated.

Grading and drainage on much of this particular program were virtually ignored. Consequently, water pockets appeared at several intersections and low places after every rain. This water required several days to soak into the ground, causing chuckholes to form in the street and fraying the tempers of the citizenry.

At one intersection we estimated the cost of a storm sewer to relieve this problem to be $2,500. Instead of laying the pipe, however, we dug a 14-foot deep hole about 60 square feet in cross-section and placed a perforated 18-inch-diameter corrugated metal pipe vertically in the center of the hole. We then filled the annular space with two-inch maximum size washed gravel. A catch basin with a metal grillwork over the end of the pipe completed the job. No water has ponded on this street since this $150 installation (materials cost) has been finished.

Flooding Prevented

At a second intersection $30,000 would have been required to enlarge an existing storm-sewer system to prevent flooding. A soaking pit and catch basin were constructed on this corner without any connection being made to the storm sewer. We have not yet had to spend any money for the enlargement of this sewer system because the drainage pit and catch basin adequately handle the run-off without flooding the street.

The universal problem of uncovered drainage ditches still plagues our town but we have been able to minimize it somewhat by providing labor at no charge to the property owners to install pipe which they have purchased. We found, however, that when pipe prices reached $15 to $20 per foot, the property owners refused or were unable to pay. The Board of Commissioners, therefore, authorized the Street Department to build its own pipe. We found that we could precast with reinforced concrete the top and two sides of a rectangular section and place them on the flat floor-slab invert which is poured at the site for a saving of ¼ to ¾ of the conventional pipe price. This double-barreled benefit results in more ditches being covered at lower cost to property owners.

Street patching used to take forever. Our trucks left for the nearest asphalt plant (25 miles away) at 6 a.m. Most of the time they returned by noon but the schedule was uncertain. Meanwhile, the balance of the crew who stayed in town wasted a portion of their time waiting and watching for the drivers to return. Coupled with the patching problem was the growing need for resurfacing on the older streets.

The Dunn Board of Commissioners, early in 1959, bought a Littleford model 121-30 asphalt plant, thereby killing two birds with one stone. The plant, which is permanently installed on the Public Works Department lot, can produce 30 tons of hot mix per hour, batching a half ton each cycle.

For resurfacing, each batch contains 14 gallons of American Bitumuls and Asphalt Company RC-5 asphalt, and sand and #10 stone in the ratio of ⅔ to ⅓. A Littleford Tru-Lay Paver-Spreader, hauled behind the mix truck, distributes the mix to a minimum thickness of one inch. In two years we have resurfaced 118 blocks totalling 46,000 tons of mix at a cost of 25 cents per square yard, which includes 18 cents for production and 7 cents for laying.

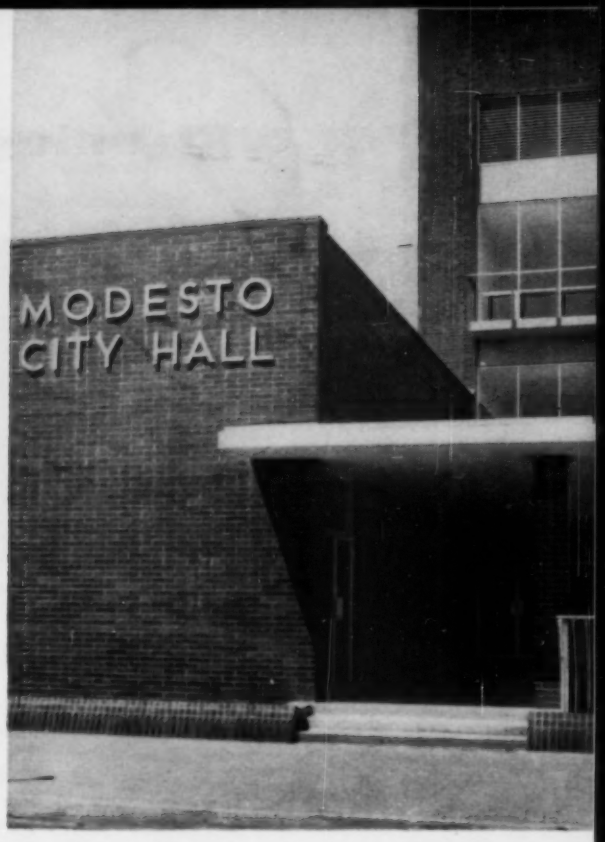
Six tons of hot bituminous resurfacing mix will be dumped from the plant into the truck.

Preparing to supply the motive power and mix for the paver, a truck backs into position.

Town Policy

Our small (population 7,000) community receives many benefits from our do-it-yourself and pay-as-you-go policy. As inflation curbs buying power and the public demands more and better quality services, every official and employee of the town is striving to find cheaper and better ways of serving the community. We point with pride to what has been accomplished and expect to do even better in the future. ◄◄

The garden court below street level brings light and a feeling of space to offices which would otherwise be in basement quarters. The terra cotta solar screen reduces air-conditioning and adds architectural charm.



The street entrance opens onto the building's second floor, thus making all floors but the fourth within one-flight walking distance.

The new municipal building in Modesto, Calif., emphasizes . . .

Utility, Simplicity, Charm

By **ROSS MILLER**
City Manager

Modesto's new city hall replaces a cramped, antiquated structure which housed city offices for half a century and at one time housed a fire station too. It brings together under one roof all administrative operations except fire and police and ends the scattered location of city offices made necessary for several years by lack of working space in City Hall.

Construction of the new city hall on the site of a former hotel, whose fire-gutted ruins were for years a local landmark, brings new vigor and beauty to Modesto's downtown area. City officials once gave serious consideration to the possibility that the remaining hotel structure might be rebuilt to serve as a city hall, but architects and engineers retained to investigate the structural soundness of the old building unanimously recommended against it. Structural deficiencies revealed, during demolition, bore out the consultants' opinions, and pointed up the wisdom of the City Council's decision to construct a new building designed especially for municipal use.

The new building is designed to serve a population of at least 50,000 to 60,000, and is expandable either upward or northward over the parking area to meet future needs. Utility, simplicity, and ease of maintenance were the goals.

Features of the building are:

- **The use of glazed brick and terra cotta in exterior finish, giving a lasting color scheme of varying shades of red.**
- **A garden-court area one floor below the street level, bringing light and a spacious feeling to offices which would otherwise have been basement quarters. The landscaping was a do-it-yourself project, with all the plants grown ahead of time in the city nursery and transplanted to their present locations when construction permitted.**
- **A street-level entrance to what is actually the second floor, making all but the fourth floor within one-story walking distance from the street (elevator service is provided).**
- **The street-floor Council Chamber, providing seats for a hundred spectators, plus space for staff and press.**
- **A "Citizens' Service Center" on the street floor, centralizing for easy access the city services which prompt most personal visits to City Hall—water, license, and tax collection services, building inspection, zoning administration, and the City Clerk's office.**
- **The terra cotta solar screen, an outstanding architectural feature of the building, which reduces the amount of direct sunlight on the glass walls and made possible a much smaller cooling system than would otherwise have been needed.**

A parking garage just north of the city hall building provides at street and basement levels parking spaces for about 100 cars.

The total cost of the 39,000-square-foot building, furnishings, and garage facility was some $1,370,000, plus an additional $270,000 for land acquisition and razing the burned-out hotel structure. General obligation bonds (15-year term) provided $950,000, and are being returned from the city's Special Capital Outlay Fund (one-half the city sales tax) with no increase in taxes. About $400,000, the estimated cost of the parking garage, came from the Parking Fund, and the remainder from current revenues. ◄◄

Town and Village Teamwork

. . . and a rubber-tired tractor mean an upgraded refuse sanitation program for both

By **LEWIS O. DUNN**
Chairman
Landfill Committee
Town of Glenville, N. Y.

One man operates two pieces of equipment at Glenville's sanitary landfill; since the town received the rubber-tired tractor the truck is used only occasionally.

Cooperation cleaned up a refuse-disposal mess for the Town of Glenville and the Village of Scotia, Schenectady County, N. Y. As a result, the old methods of disposal gave place to the sanitary-landfill method.

When the village was the major part of the town population a pig raiser took the garbage while rubbish was dumped on a site outside the village but within the town. This was never popular and meant separate wrapping in the home. As time went on and the population increased, this situation became a source of many complaints to the Town Board and at times even became a political issue. Thus, it became our problem to eliminate the open dump used by the village.

In the mid 1940's the town voters defeated a referendum for funds to purchase and install an incinerator. Town population increased and soon we faced the same problem of disposal as the village. Finally the Town Board decided to adopt the sanitary-fill method for disposal of all refuse collected in the town and the village and put this plan into effect in September 1956.

In the first two years we reclaimed about five or six acres of land for an addition to the village park. Then we moved the operation to a centrally located 50-acre site obtained through a long-term lease at $1,300 per year. Since this site has considerable low land with plenty of cover dirt, we use the area method.

The operation proved satisfactory from the beginning and the cost has been moderate. Until last July we used a Caterpillar 955 Traxcavator. This we traded in for a rubber-tired Caterpillar 944 Traxcavator. The new unit works better because it can be driven over a greater distance with less maintenance cost. We also have a truck at the site but do not use it constantly, especially now that we have the rubber-tired machine.

One man operates the dump, which is open between the hours of 8:00 a.m. and 3:00 p.m. This gives him one more hour in the work day to make his final cover-up by 4 p.m. The operator spends his day alternately leveling the face, compacting the refuse with the 10-ton machine, stockpiling cover dirt and covering the refuse. Each night he completely covers all refuse with earth. We have had no problem with fires and the land owner is very happy to see his land being reclaimed in this manner. At the present time we are also conducting a temporary operation at another site to reclaim some low land near the village park.

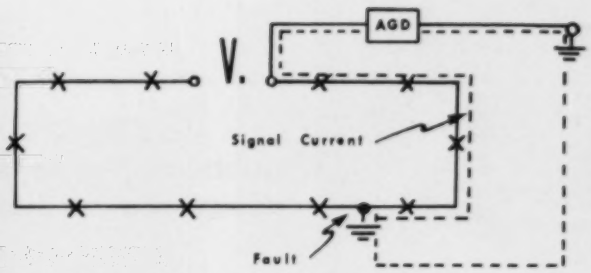
Scotia uses two 16¾-yard Hydro E-Z Pack collection units on Ford F-600 chassis to make weekly collections from the 8,000 residents of the village.

Seven private collectors serve the 18,000 town residents with a total of nine trucks. These collectors are licensed by the town. The town operates the landfill and spreads the cost over the whole town, including the village. We also receive $100 per month from the Naval Supply Depot in Glenville (a tax exempt installation) for dumping privileges.

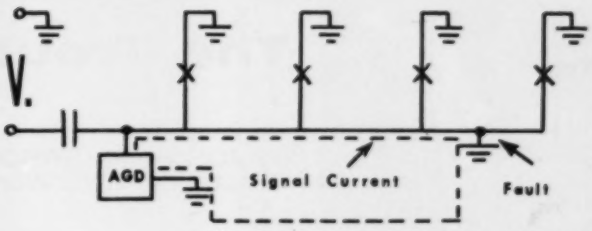
Our total budget for 1961 amounts to $14,720. Based on annual handling of about 15,000 tons, it costs us less than $1 per ton for disposal only. Rarely do we receive complaints, so we believe the cost is moderate for such a satisfactory disposal operation. ◄◄

Operator Carl Krutz finishes each day's work by covering the last remnants of refuse with dirt.

1. *Signal generator in substation.*



2. *Application of the Allen ground detector to series lighting system.*



3. *Application of the Allen ground detector to parallel system.*

4. *Hand-held signal receiver.*

Locates Electric Ground Faults At Midway Airport

Chicago's Midway Airport has a system whereby ground faults that develop on runway and parking lighting systems can be located quickly with pinpoint accuracy.

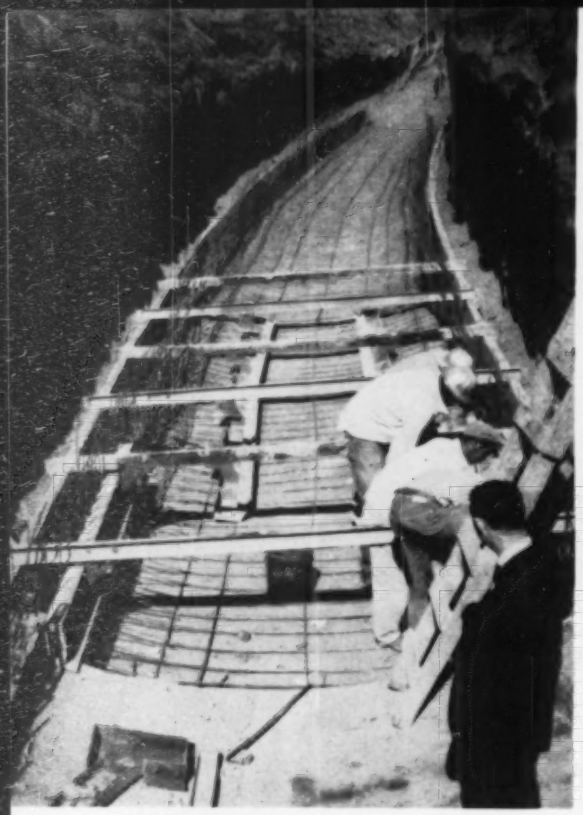
Airport-runway lighting circuits are similar in installation, whether they are series loop or multiple parallel design. The power distribution cables from the substation feed the various transformers located throughout the field. Individual lamp transformers are housed in small concrete pits flush with the ground. The runway light is mounted above the pit. The cable for the lighting circuit enters the pit and passes through the primary of a transformer to the other side of the pit, and so on to the next light. Depending on the type of system installed, there may be more than one transformer per pit. The cable is generally a direct burial type, one to three feet deep.

The pit collects water during rainstorms and, when those storms are severe or frequent enough to keep the transformers continually submerged in water, trouble is bound to develop and the transformers or other parts of the system will go to ground. Those grounds can be severe enough to allow the complete system or portions of it to become inoperative, so they must be located and removed.

The usual method is to de-energize the system, then open the cable at various points and check for grounds by ringing out the cable between these points. This takes time and sometimes causes another ground.

The Allen ground detector, manufactured by the Excel Electric Service Co., 2123 Southwestern Ave., Chicago, Ill., works on either series or parallel circuits. It consists of a signal generator in the substation and a hand-held signal receiver. The signal generator in the substation is connected to the circuit to be tested (Figure 1). When a ground fault is present on the circuit, a signal current will flow (Figures 2 and 3 illustrate the signal circuit). The signal current pulsates in a distinctive manner and is traced by the operator at ground level with the signal receiver (Figure 4) by observing the signal pulsations on the signal receiver meter. The signal is traced to the fault. If the fault is of a pinpoint nature, the signal will drop sharply at that point. If the fault consists of a damaged length of cable, the signal falls off gradually over the damaged length. The fault is then exposed and the system put back into operating condition. The location time has been a matter of minutes.

The Atlanta, Ga., Municipal Airport was the first airport to use the system to maintain its runway lighting circuits and was soon followed by the Midway installation. ◄◄



Specifications required that the 120° arch of the horseshoe-section sewer should be poured against undisturbed earth.

Lubbock, Texas, storm-sewer design proves that . . .

Alternate Bidding Is Worth The Trouble

By JOHN HICKERSON
Director of Public Works

Major storm-sewer projects in a semi-arid region such as Lubbock are infrequent. When such a project is required, the city finds it difficult to evaluate the economies of the various methods of construction because of the many advances in construction and manufacturing processes. We found ourselves in such a position, when in 1955, our voters approved $1,000,000 in bonds for the construction of approximately 18,000 feet of 96-inch storm sewer and some collector lines. This was to be the first phase of a system that would eventually extend into an area including some high-value residential districts subject to flooding on a 25- to 50-year frequency. Although the city engineering staff had ample time to explore the various possibilities of the type of construction that might be used, the information was so confusing that they had great difficulty arriving at any reliable conclusion.

Multiple Choice

After carefully studying the different kinds of pipe available, we decided to draw specifications and proposals permitting contractors to bid on any or all of four different kinds of construction. These four proposals were:

Proposal A: non-reinforced, poured-in-place, concrete pipe sometimes called "no-joint" pipe. Information received from other projects led us to believe this would be the least expensive of the four by some $130,000 but it actually missed being low bid by about $62,000. Specifications required the lower three-fourths of the pipe to be poured against undisturbed foundation material, with a minimum wall thickness of nine inches. A construction joint below the spring-line as well as continuous-pour construction was permitted.

Proposal B: reinforced circular concrete pipe poured in place with approximately 42 pounds of steel per linear foot of pipe and a minimum wall thickness of nine inches. The specifications directed that the bottom 120° arch of the pipe should be poured against undisturbed foundation material.

Proposal C: poured in place, reinforced monolithic pipe having a horseshoe-shaped section with approximately 50 pounds of steel per linear foot. Although the specifications included a typical design, they allowed the contractor to submit his own design prior to opening bids if he owned forms that would make it more economical for him to bid an alternate section. The bottom portion of the horseshoe was to be poured on undisturbed foundation material.

Proposal D: Class II A.S.T.M. C-76 sewer pipe, except that steel requirement could be reduced so long as the actual three-edge bearing test produced the minimum load requirement.

Surprise Results

Our decision to include four proposals made almost everyone unhappy. The additional design information and specification details greatly increased the work of our engineering department. Some pipe suppliers were displeased because they felt the city was "muddying the waters" and that "there is no question that the use of our pipe is the most economical." Finally, the contractors seemed thoroughly confused and complained of spending long hours preparing bids.

Nevertheless, we received 26 proposals from 17 contractors, more than on any other project regardless as to size. The high and low bids for each proposal was as follows:

Proposal	Low	High
A	$ 830,766	$ 1,014,276
B	830,409	1,240,444
C	768,743	1,041,251
D	838,201	976,076

Workmen place interior and exterior forms for the top section (left) and make the final pour through the opening in the top.

The city awarded the contract to A.B.C. Construction Company of Tulsa, Okla., on the basis of their low bid of $768,743 calling for the adoption of Proposal C. Following are the lengths and sizes of pipe which were constructed:

18,000 feet	96-inch equivalent horse-shoe section
5,000 feet	72-inch equivalent horse-shoe section
690 feet	48-inch Class II reinforced concrete
2,255 feet	42-inch Class II reinforced culvert pipe
1,360 feet	36-inch Class II culvert pipe
660 feet	30-inch Class II reinforced culvert pipe

The contractor started work on the project in March of 1960 and the work was completed in March of this year. He was able to average 2,000-feet per month on the 96-inch section; encountering very little rock and practically no subsurface water. The line in general is located in the open, permitting the use of heavy equipment.

Although the city's decision to take bids on four proposals was an unpopular one, it was fully justified by the bids received. No sales representative or contractor was in a position to tell the City Council that it would have been cheaper to let them bid on some other kind of construction.

Carl Hickman, presently city engineer of Dumas, Texas, designed the project under the supervision of Samuel W. Wahl, utilities engineer, and James Conely, street engineer. Our own forces are also inspecting the work. ◄◄

Plans Metropolitan Districts

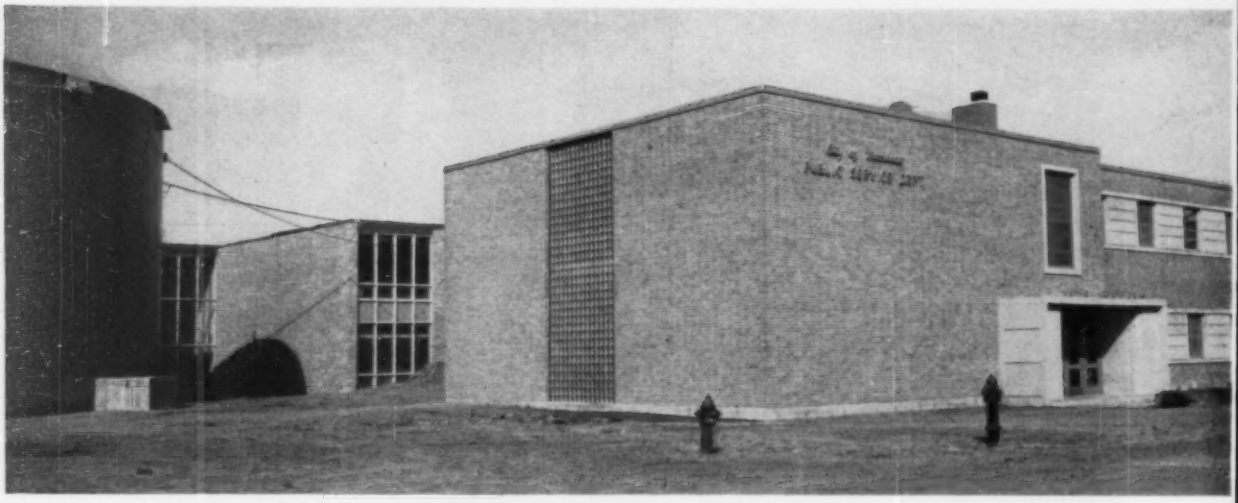
The California legislature is planning to enact enabling legislation that would permit the establishment of nine "federated" urban governments in the principal metropolitan areas.

Under the proposed law, these metropolitan areas could establish, by public vote, multi-purpose districts that would be given taxing and bonding powers to provide long-range planning, water, water pollution control, sewerage and sewage purification, law enforcement, regional parks and civil defense. Governing such a district would be a council of county and city officials.

The Governor's commission studying metropolitan problems recommended these districts for the metropolitan areas of Bakersfield; Fresno, Los Angeles, Modesto, Sacramento, San Diego, San Francisco, Santa Barbara and Stockton.

The Los Angeles area has 594 of the 2,000 governing bodies in California. The area has more than 60 separate fire departments and as many police departments. California today has 15,500,000 people and, if its present rate of growth continues, it will exceed New York as the most populous state in 1962 or 1963. By 1980 it could have 30,000,000. Yet 90% of its population is clustered in 5% of the state's area.

The plan represents results of study by Governor Edmund G. Brown's Commission on Metropolitan Area Problems. The Commission had the assistance of local government officials and other experts currently working in the field of metropolitan area problems. Expert aid was provided by the University of California, San Diego and Sacramento State Colleges, the University of Southern California, the Ford Foundation and other research councils. ◄◄



Flanking the new water treatment plant are a shop and garage.

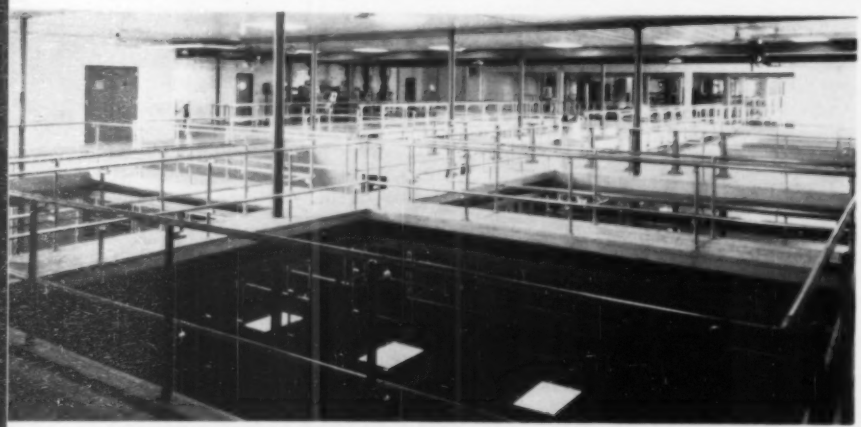
Three Sources of Water Supply

. . . provide a small plant in Moorhead, Minn., with adequate water for the future

By **JOSEPH E. YOUNG**
Director of Public Works

Summer sprinkling in 1956 caused a demand that could not be fulfilled even though all water facilities operated at full capacity. We knew then that the unexpected population surge we were experiencing would force us to increase our supply and add to the existing water-treatment plant, many years before previous predictions indicated it would be necessary.

Before 1950, Moorhead obtained all its water from wells drilled into an aquifer inside the city limits. When this aquifer began to show signs of depletion in 1945, the city studied alternate supply solutions. Another aquifer five miles east of the city showed promise of yielding 3.0 mgd, enough to serve the estimated 1980 population of 15,000. In 1950, four new wells with short-run capacities from 600 to 2,100 gpm, tapped this water-bearing strata. A new five-mile-long main brought the water to the city where it detoured through a new 3.0-mgd treatment plant before entering the distribution system. The up-flow plant reduced the 19-grain hardness and removed iron from the water of these newly-drilled wells. The city's three original wells adjoining the plant added 0.6 mgd to that furnished by the new exterior wells. But the supply became inadequate in 1956, only six years after starting operation.

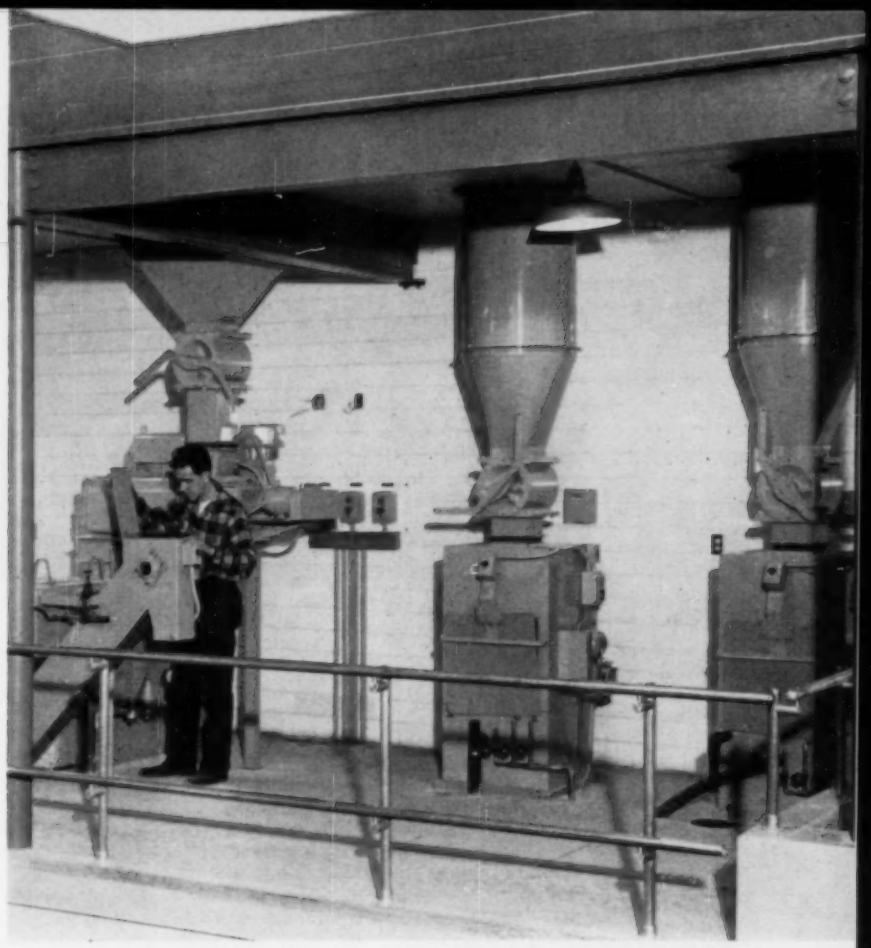


Looking over the new filters and precipitators into the original plant.

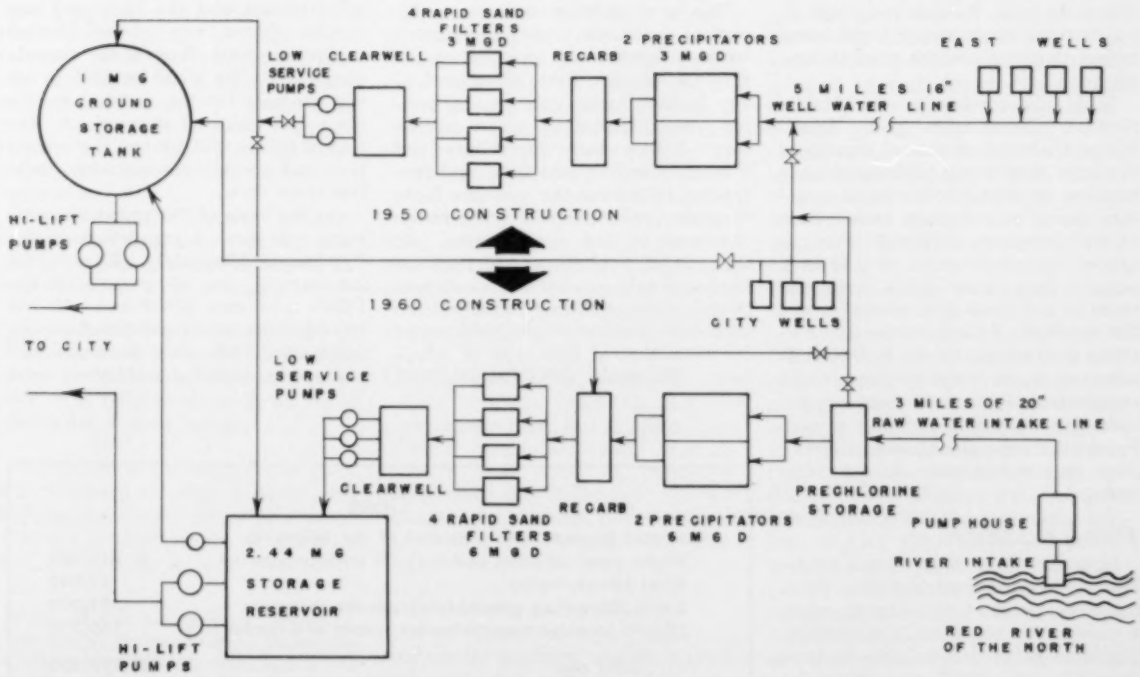
And no wonder! The 1980 population estimate of 15,000, made in July 1947, became a reality in 1950, 30 years earlier than predicted. The 1956 population, based on the 22,934 people subsequently counted in 1960, must have overtaxed the plant and supply by more than 30% when we experienced the difficulty of supplying the demand.

Consultants Report

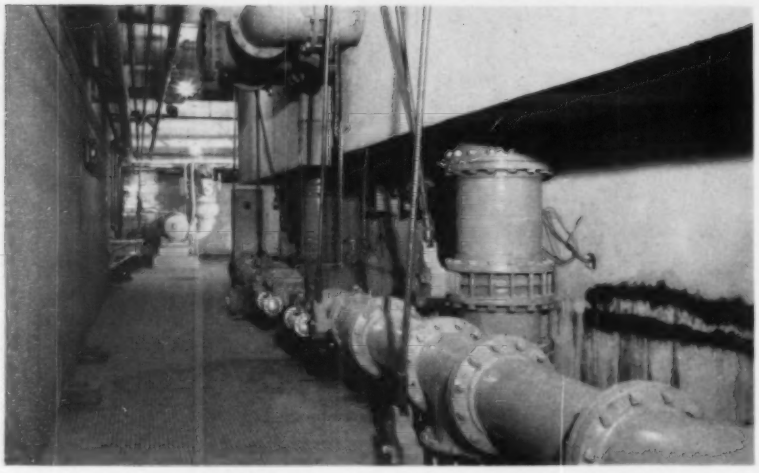
The Public Service Commission hired Adolph Meyer, a well-known water expert, and William F. Guyton and Associates to make a study of



The tile floor and wall form a background for the infilco lime slakers and chemical feeders.



The flow diagram indicates how the new construction complements the older portion of the plant.



The Fairbanks, Morse high-lift pumps are at the end of this wide pipe gallery.

the two aquifers upon which the city presently relied for its water supply. Subsequent McCarthy Well Company drillings and U. S. Geological Survey reports confirmed the conclusion that the two aquifers would not supply water reliably at an average rate of more than 2.0 mgd, without becoming seriously depleted.

After considerable study of the report, we advised the Public Service Commission that any additional water supply for the city must be secured from the Red River of the North, which forms the west boundary of the city. We also recommended that the river water supplement rather than replace the present supply.

With all confidence the Public Service Commission then determined that the additional treatment facilities should add to those already existing so that all treatment could take place at one plant rather than at two locations. Although this required the construction of a 20-inch supply line, three miles from the river to the plant site, several benefits resulted. Sodium carbonate, existing in large quantities in the wells adjacent to the existing plant, could supplement the use of commercial soda ash with a substantial saving. In addition, one plant location rather than two would save on operating costs.

Plant Addition

Foss and Company, a local architectural and engineering firm, drew the plans for the new addition, using the existing plant as a prototype. The new plant will be able to produce 6.0 mgd, 200% more than the original, computed at the rate of 1 gpm per square foot on the upflow precipitators and 3 gpm per square foot on the four additional rapid sand filters to be installed.

The new plant will be able to treat the river water separately, if desired, keeping its operation entirely apart from the treatment of the well water in the older section. Other possible combinations include combining of the river and well water at the entrance to the plant as well as the application of the adjacent well water at any of several locations during or after treatment.

The new addition contains a 20-minute-detention pre-chlorination basin, a feature not included in the original plant. Two 100-pound-a-day Fisher-Porter chlorinators supply pre-chlorination when necessary. Infilco rate controllers and chemical feeders add lime and ferric-floc to reduce the variable 5- to 20-grain calcium and magnesium hardness of the river water. At times, a varying amount of sulphate hardness will require small amounts of soda ash in addition to the sodium carbonate content of the well water for reduction of this type of hardness. Permutit precipitators will then remove the floc prior to recarbonation and filtration. A final shot of chlorine will impart an adequate residual and the water will be ready for use.

Three Sources

It is unusual for a plant of our small capacity to rely on three different sources of supply as much as 7.5 miles apart, particularly when the nature of the water from these sources varies so widely. The wells east of the city (the primary source prior to the river supply facilities) furnish water with 19 grains hardness, consisting of calcium carbonates, magnesium carbonates and a substantial amount of iron. Water from the wells adjacent to the plant has a total hardness of 12 grains but contains a large amount of sodium carbonate. We anticipate mixing some of this water with the river water to reduce the sulphate hardness which the river water carries during certain portions of the year. The river water ordinarily contains from 5 to 20 grains of calcium and magnesium hardness, and its turbidity varies from 0 to 200 ppm.

We anticipate using several different combinations of supply and treatment because of the variation in the quality of the river water from one season to another. The new effluent will equal the five-grain hardness and pH of 8.5 previously attained with well water alone. We can control all wells, the river pumps and the high and low service pumps from a board located on the operating floor of the remodeled plant. We shall be able to set the controls for the existing conditions and required demand. A system of relays will control the operation and operate alarms when malfunctions occur.

On the basis of 200 gpcpd, the new plant will serve a population of 45,000 people adequately. Even if the astonishing rate of growth of the 1950's continues, Moorhead will not have to enlarge its plant and supply until after 1980. Dry summers will cause no sprinkling problems. ◄◄

Cost

The total improvement consisted of the following:	
Water plant addition and high-lift pumping station	$ 611,000
River intake station	57,000
2,400,000-gallon ground-level storage reservoir	189,000
20-inch Lock-Joint concrete-pipe supply and feeder lines	340,000
Total cost	$1,197,200

Insecticides for Dutch Elm Disease

By **DR. D. M. NORRIS, Jr.***

The Dutch elm disease *can* be effectively controlled. Moreover, through the use of the insecticide, methoxychlor, you can produce this control on a highly practical basis and without causing significant losses in wildlife.

It has substantial toxicity to elm-bark beetles and low toxicity to other life. For example, tests show methoxychlor to be less than 8% as toxic to robins as DDT.

Plague Since 1930

Dutch elm disease has been a plague to our most important shade tree, the American elm, since about 1930. To many eastern cities, the disease may linger mainly as a past problem that "freed" the streets of most trees and at least temporarily increased the taxes. A few may still be using good control measures (sanitation and insecticide sprays). As a result they have the continued pleasure and beauty of many elms. In many midwestern cities, the disease may still be a relatively new and possibly poorly understood problem, or perhaps only a future threat. In any case, this is written chiefly for those in the latter two categories.

Control of this disease involves two types of measures practiced with a high degree of thoroughness on an annual basis. These are:

- **sanitation (elm wood clean-up)**
- **an annual dormant-season application of DDT or methoxychlor (preferably as a 12% emulsion spray via a mistblower in early spring).**

Sanitation is the most direct control measure in that cutting and burning dead and dying elm wood destroys fungus (cause of disease) and the beetles (insects that carry the fungus from dead wood to healthy tree). Such wood destruction alone can greatly reduce the incidence of the disease. Some cities apparently have controlled the disease quite effectively by using only sanitation and good tree maintenance.

Tree sanitation combined with thorough mist-blower application f three to four gallons of 12% spray per mature elm during the dormant season will reduce annual elm losses to the disease to less than 1% of the involved trees. This loss rate is less than that which often occurs in cities lacking Dutch elm disease. Many cities are compiling case histories of this type covering periods of five to ten years.

The basic essential quality is a highly competent city forestry department that is adequately motivated, financed, equipped and assisted by the citizenry. Successful disease control costs money and few people voluntarily seek higher taxes. However the taxes required to support a good control program are generally no more than the sudden tax bill required to pay for compulsory removal of the thousands of elms in your city when the disease gets into high gear. The average price of effective tree protection for 40 to 50 years will not exceed the average cost of required dead tree removal; thus, control is a highly practical measure that actually spreads the tax bill out over the years and retains most of your elms for enjoyment during your life span.

Understanding Needed

This program does not require superhuman feats, but simply a competently organized and well-informed "task force" of personnel. Frequently the difference between success and failure lies with one person, the city forester. The adequate management of such a control program requires a high degree of understanding of the disease.

In the last several years increasing concern for apparent wildlife mortalities associated with the DDT spray applications has appeared. These losses vary greatly and frequently coincide with clearcut cases of reckless use of excessive amounts of insecticide. A comparison of the treated area in such Dutch-elm-disease controls, with the total available untreated acreage for wildlife, indicates that only a very limited portion of the total area is involved. However, people with property in the treated area do see real losses in wildlife and frequently become very concerned.

Because of this developing situation, studies in Wisconsin during the last three years have emphasized the development of an alternative insecticide to DDT for use where such concern exists. Biologists conducting research on this problem desire control measures that protect as many elms as possible without causing significant losses in other life.

Repeated field tests with three gallons of 12% DDT spray per 60- to 70-foot elm applied in late fall have given control of bark beetle feeding ranging from 91.4% to 100% through 240 days after treatment. Thus, such an application in early November can protect over 90% of the twigs in healthy elms through July of the

Methoxychlor, applied to trees through equipment such as this Rotomist sprayer, can check the Dutch elm blight with only a minimum of danger to wild life.

* Dr. Norris is Assistant Professor, Department of Entomology, University of Wisconsin, Madison, Wis., and is responsible for research on insect aspects of Dutch elm disease in Wisconsin.

next summer. This degree of protection can be increased to between 95 and 100% by similar DDT sprays in early spring, before leaf expansion. Several sizable field experiments have shown that essentially 100% protection of elms is possible with 12% DDT for 150 days after spray application, if spraying is done by a highly competent crew and under favorable conditions.

From these many experiments, we were well-aware of the high effectiveness of DDT and the inherent problems of finding an adequate alternative insecticide with much less toxicity to birds and other wildlife. Fortunately, previous research with the insecticide, methoxychlor, had indicated its considerable toxicity to elm-bark beetles and very low toxicity to most other life. This chemical has been further studied in comparative field tests with DDT and proves to be similarly effective against the beetles at least when applied as a 12% emulsion spray during the spring dormant season. In comparative tests, methoxychlor gave control of beetle feeding ranging from 93.7% to 96.4%, while DDT gave 95.1% to 99.3%. These studies involved effectiveness tests through 102 days after applying four gallons of 12% insecticide per 90- to 100-foot elm.

Less Toxic

Methoxychlor has been reported as being anywhere from 12 to 34 times less toxic to robins than DDT and thus its use in Dutch-elm-disease control is strongly recommended for those situations where wildlife (especially bird) losses are or may become a major concern. Methoxychlor costs two to three times as much as DDT per pound, but such differences in cost are usually minor considerations to the devoted wildlife enthusiast who also values trees. On the basis of considerable biological information, this chemical does provide a very effective elm-bark-beetle control when applied in the spring and its efficient use should cause no significant loss of wildlife.

Until further studies of fall applications of methoxychlor are completed, we are only recommending a 12% spray via mist blowers as a spring treatment before the emergence of the buds. ◄◄

Tenafly's Civic Center

Tenafly, N. J., expects to be in its new three-building municipal center by the spring of 1962, according to Mayor Howard M. Booth.

The municipal center will occupy a 14-acre, borough-owned site just west of the business section.

Heart of the plan for the center is a small central plaza, or forum, designed to serve as a town gathering place—the modern equivalent of a village green. The buildings—a public library, borough administration hall, and fire-police headquarters—are arranged on three sides of this plaza, connected by a covered walkway. Thus, each activity exists independently, yet all have the economy and convenience of unified design.

In keeping with the character of the surroundings, the buildings have a broad, low scale and sloping roofs, and will be constructed of red brick. The trim will be white wood and masonry.

The public library has a "T" shaped plan with separate areas for adult and children's activities off a central lobby. Shelf space is provided for 51,000 volumes in open stacks. A community room for lectures, civic functions, and cultural affairs is included.

The fire-police headquarters is a long, rectangular building divided equally with office, equipment and service facilities for each department. Separate garage space provides for seven pieces of fire equipment, police vehicles including an ambulance and emergency truck, and a workshop. A tall tower for hose drying and fire department training provides a vertical emphasis to the building group.

In the borough administration building the council chamber has permanent seats for 130 and is designed to serve also as a magistrate's court and for various borough agency sessions. The council chamber is located forward of the covered walkway in the center of the plaza to stress the traditional importance of the town council in community life.

Roofs of all buildings have offset clerestories to admit subdued natural light and also provide vents for mechanical air handling equipment. Heating, air conditioning, and utility services for the entire center are economically centralized in the fire-police building.

The site-development plan provides parking spaces for 230 cars with the largest lot along Tenafly Road designed to serve the neighboring business sections as well. Police and fire vehicles will have their own direct access to Riveredge Road. Several acres of the site just south of the center have been reserved for playing fields convenient to the junior high school.

A municipal bond issue not to exceed $1,297,000 was approved last November to provide the majority of the funds to build the municipal center. The center was designed by Vincent G. Kling, Philadelphia architect, associated with Ira Davey, architect of Hackensack, N. J., on the library phase. ◄◄

Tenafly's proposed three-building municipal center.

How to Manage Municipal Personnel

. . . based on a half century of practice in Cincinnati, Ohio

By **W. D. HEISEL**
Personnel Officer and
Civil Service Secretary

Psychology, with its understanding of the basic motivation of people, was in its infancy in 1910 when the Cincinnati Civil Service Commission was established. Today, there is a body of psychological knowledge referred to as "personnel administration." During these 50 years, Cincinnati's government has reflected this progress.

To help employees to know what is going on that affects them, *CinSee News* began publication in March 1959. Edited by a Personnel Department staff member, this two-page monthly newsletter provides information on current city policies and news of city employees. Its cost is financed by the Employee Relationship Fund, which derives

its money from vending machines used by city employees. Over a period of time, we look for *CinSee News* to effectively spread authentic information concerning the service, and thus build a greater interest and identification with the service.

Need to maintain the closest possible liaison with the principal operating agencies led to the formation in 1959 of a Personnel Advisory Committee. Its 12 members, who have the rank of assistant division head or higher, meet monthly to discuss existing personnel policies and their effects on operations, and to suggest new policies or revisions of existing procedures which will make operating personnel most effective in the field. For example, one of the first subjects discussed was the development of better attendance control. The exchange of ideas among the agencies represented was one of the immediate benefits of the committee.

Employee Activities

Another device for developing such interest is the fostering of employee activities which identify persons as city employees. This program, also financed from the Employee Relationship Fund, has grown considerably in the five years of its existence, and now includes:

1. *Bowling*. A men's league with 85 players and a women's league with 40 players each meet weekly.

2. *Golf*. Eighty players play regularly during the season on public links.

3. *Softball*. Over 125 men participate in a regular league.

4. *Volleyball*. A newcomer to our program but over 20 employees are now participating each season.

5. *Choral Group*. The choir of 35 voices focuses its attention on the Christmas season. It provides the music for the annual Christmas program for city employees. In addition its outside concerts include TV appearances and a special concert at a Senior Citizens' Center.

Civil Service Examinations

Civil Service's biggest function in the "good old days" was holding examinations; indeed, the principal reason for its existence was to keep politics out of employee selection by the examination process. This important function is still with us, but has changed considerably in character. In 1910, for example, the Commission had to give exams for "two-horse drivers." We are not sure whether they tested just the driver or his horses as well; he had to furnish his own.

Testing technique was crude, by today's standards. There were no psychological tests available. The earliest tests in our files (going back only to 1914) indicate a heavy dependency on such basic abilities as arithmetic, spelling, and "penmanship" regardless of the position for which the exam was held.

Some things never change. The staff of two was apparently just as busy then as we are now. At any rate, because of the pressure of work, the Commission in 1911 helped to relieve the staff by designating the hospital superintendent as special examiner for positions which paid less than $30 a month. Now, our lowest entry salary is $210 a month.

Another perennial problem is that of the large percentage who fail tests. In 1910, records show that 536 men took an examination for sub-patrolman and only 112 passed. The rest were rejected for failure to meet physical standards. There were 329 who took the first examinations for sub-firemen and stoker and all but 65 were rejected for physical defects. Records show no causes of rejection other than physical.

With the passage of 50 years, times may have changed but the outcome of police examinations did not. A total of 288 applied for the recent examination for police recruit. Sixty-six of these failed the preliminary eye test and 16 were rejected by the Commission. Of the 160 who finally appeared for the examination, only 52 passed.

While, in 1910, Civil Service was intended only to "keep the rascals out," Cincinnati's commission soon realized more was required in order to have a competent city service. The raw material had to be trained.

In 1913, the commission's report for the first time refers to employee training: "we have suggested . . . that to increase the

" . . . exams for two-horse drivers."

efficiency of the administrative service of the city, the city itself should assist all of its employees to become more efficient, and that in the Police Department a School of Instruction may be instituted with practically no additional expense to the taxpayer."

This was written before personnel work had ever been identified as a tool of management. Now that the values of employee development have been well established, Cincinnati has a very complete program which, in our opinion, has contributed much to the success of the government.

Just as education has been defined as "Mark Hopkins on one end of a log and the student on the other," the Personnel Department philosophy has been that employee training is best handled as a part of the supervisor-employee relationship. Such training is informal, but nevertheless effective. It goes on all the time, as a good supervisor explains an operation or permits an employee to do a different task.

However, some aspects of employee development must be handled more formally, or in groups, simply because it can be done more efficiently than under a tutorial supervisor-employee plan. Much of this type of training goes on within departments, under the leadership of department officials; some require either the help of the Personnel Department, or, where many departments are involved, require the management of the program by the Personnel Department.

Departmental training is best exemplified by the Police Academy and the Fire College, which for many years have rated among the finest in their respective fields. Sewage Disposal, with its growing need for personnel as new plants are made ready, has been doing intensive training ever since the division started operation in 1953. Highway Maintenance conducts weekly training programs for its foremen and crew leaders in safety, supervision, and human relations. Engineering's Construction Section uses bad-weather periods in the winter for training in construction methods and city policies. Personnel technicians are frequently invited to participate in selected sessions in all these programs. A General Hospital program for professional personnel is handled entirely by the Personnel Department.

Among the programs reaching across departmental lines and therefore operated by the Personnel Department, the programs for supervisors and higher-level employees received the most emphasis in 1959. With an appropriation of $4,000 for the purpose, the Department was able to enter into agreement with the University's College of Business Administration for a 24-session management-development program for top personnel. The University furnished capable, experienced professors to conduct the lecture-discussion program. The first such group completed its program early in 1959.

Xavier University has provided the leadership in supervisory training; the third group of supervisors will complete its program early in 1960. These groups have studied supervisory methods in municipal administration, using a text developed by the International City Managers' Association. While this program explored all phases of a foreman's work, it emphasized the human-relations aspects.

Other City-Wide Programs

Each month, two staff members conduct a one-day orientation program for new city employees. The program includes a brief history of Cincinnati and its government, employee rights and privileges, safety, and the functions of the city government. Through this program, new employees gain a better understanding of the relationship of their work to the whole process of supplying city services.

Use of U. C.'s Evening College facilities for the development of employee skills has been stimulated for the past four years by the University's action in permitting employees to enroll for half the usual tuition rate. In the fall, 1959, semester, 187 employees took advantage of the offer. All courses must be certified by the Personnel Department as being directly related to the employee's work.

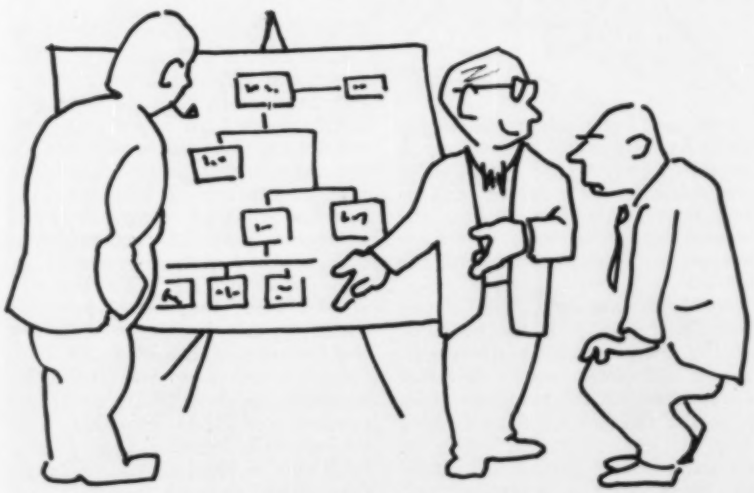
Promotional Examinations

For the sixth consecutive year the number of promotional examinations conducted grew in number. In 1959 the figure rose from the 127 of the previous year to 145.

Since promotional opportunities in the city service are exceptionally good it is not uncommon for an employee to enter the service when he is quite young and eventually become a department head.

As examples, two men have risen to head the department in which they began their city employment. In 1959 Carl V. Gailey was appointed Superintendent of Highway Maintenance. Mr. Gailey began his career with the city in 1931 as a truck driver. Rising through the department by means of promotional exams, he was promoted to Supervisor of Hard Paving in 1943. Ten years later, he became Assistant Superintendent of Highway Maintenance.

Arthur D. Bird qualified as City Engineer in a 1959 promotional examination. He began his career in 1931 as a co-op student while studying at the University of Cincinnati's engineering college. He was subsequently promoted to Senior Draftsman, Assistant Engineer, Senior Engineer, and in 1951 he became the Principal Administrative Engineer. ◄◄



" . . . a one-day orientation program for new city employees."

GIVE YOUR MOTORISTS 50% MORE MANEUVERING SPACE WITH TWIN-DUALS

Rockwell Twin-Dual parking meters insure a full *eight feet* to approach or leave a parking space. Other meter layouts allow only four feet for maneuvering and parking. Approach and exit are *safer* with the Twin-Dual parking system, because traffic flow is smooth and fast. In one city, average parking time was reduced from 32 seconds to only 14 seconds. Parking time for women dropped from 37.4 seconds to only 15.9 seconds.

Twin-Duals offer other key advantages . . . 23% lower initial cost, because two mechanisms are combined in one case; 50% lower installation costs, since only half as many meter stands are required; and lower maintenance costs, because two meters are checked at once.

For additional information on the complete line of Rockwell automatic and manual parking meters, write: Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Co., 400 N. Lexington Ave., Pittsburgh 8, Pa.

The only complete line of automatic and manual parking meters

DUAL PARKING METERS
another fine product by
ROCKWELL

The latest and largest lot (left and below) is located immediately to the rear of a full business block; the Park-O-Gate, ticket spitter and sonic equipment as well as the parking meters were provided by Magee-Hale Park-O-Meter Co., Oklahoma City, Okla.

Parking Program With a Future

By **ARTHUR T. CARNEY**, Administrative Assistant
East Lansing, Mich.

Just after World War II, in East Lansing, Mich., Michigan State University more than doubled its enrollment. Our permanent population was also growing. These events introduced the city to a serious parking problem.

It was not until late in 1950, however, that the City Council authorized the purchase of two parcels of land for off-street parking. Then it appeared as though the parking problem was under control. Near the end of the Korean conflict, when student enrollment again soared, the insufficiency of off-street parking spaces re-occurred. Indeed the need for additional parking had grown faster than the accumulated reserves in the parking-meter fund.

A group of local merchants offered to purchase additional land and lease it to the city for a period of five years. Included was an option for the city to purchase the land at the cost price. The City Council on April 20, 1953, appointed a group of East Lansing businessmen and the city manager, to the Parking Committee, for this purpose.

Once again East Lansing was ahead of the parking problem! That is, until a decision by the State Supreme Court declared Grand River Avenue (Route U. S. 16 and the main business thoroughfare) to be a State Trunk Line and under the jurisdiction of the State Highway Department. As a result of this decision, all meters along this route were removed by December 1954, and all parking there prohibited. The new problem was to find off-street parking spaces to replace those spaces lost on Grand River Avenue.

In April, 1955, the City Council offered for sale $279,000 of Automobile Parking System Revenue Bonds:

1. **To purchase the three parking lots, leased under option from the group of merchants;**
2. **To improve and expand the existing four parking lots; and**
3. **To purchase land for a fifth parking lot.**

The sale of the bond issue permitted the construction of the fifth parking lot; its 52 spaces brought the city total to 303 off-street spaces.

By January 1960 several annexations had more than tripled the area within city limits and increased the population by over 50%. The City Council, again through the efforts of a local real-estate firm and the businessmen, secured three new parcels of property on the present perimeter of the business district at a cost of $261,000. The purchase was again handled on a lease-purchase agreement with the merchants as before, with a revenue-bond issue slated for the future to provide the funds for city ownership. The new lots will provide 245 new off-street spaces for a total of 621, more than meeting the demands.

The largest lot (195 spaces at the rear entrance of

(Continued on page 122)

ON - STREET

OR

OFF-STREET

PARK-O-METER PRODUCES PROFIT

Whether your city has on-street or off-street parking problems, Park-O-Meter can be utilized to produce profits.

Park-O-Meters are automatic and accurate. They can be adjusted *on the site* for time, rate and coin changes, thereby eliminating costly shop maintenance and overhead.

Park-O-Meter parts are precisely engineered and skillfully built of finest quality brass, copper and stainless steel. They pay for themselves quickly and continuously.

Let a Park-O-Meter parking expert show you how you can have a profitable parking meter system.

CLIP THIS COUPON

_____ I would like to have more information.

_____ Please have a Park-O-Meter representative call.

Name _____ Title _____

City _____

State _____

P O M

MAGEE-HALE PARK-O-METER COMPANY

3909 Willow Springs Road • Oklahoma City, Oklahoma

(Continued from page 120)

one block of business establishments) has been converted to an attendant lot which has served to increase the turnover in the lot as well as the revenue. The other large lot behind the next business block will be converted to an attendant lot in the summer of 1961, which will more or less coincide with the completion of a large department store at one end of the lot.

Parking rates in the immediate downtown area are five cents per half hour. Rates in the perimeter lots are five cents per hour with the exception of one storage lot which is on a monthly rental of $7.50. This lot is used mostly by students and by employees of downtown business.

Most of the rear entrances of the stores open directly into the city parking lots and with this in mind the owners have completely remodeled the backs of their buildings into another front. These "two-front" buildings have contributed to the over-all attractiveness of the district and have started improvements toward further beautification of the entire central business area. Shrubbery and trees and colonial-type informational signs have been added in the parking lots. Our goal now is for a beautiful business district complete with sufficient parking. ◄◄

Sioux City Goes for Semi-Actuated Signals

To preserve curb parking in our downtown business district and to relieve traffic congestion there, Sioux City, Iowa, has recently completed a downtown one-way grid. We now have two pairs of east-west one-way streets and two pairs of north-south one-way streets. The installation stage was completed to coincide with the opening of the downtown interchange of Interstate 29. Since our streets are 52 feet wide, the one-way flow allows us to have three 12-foot moving lanes and two parking lanes; the result has been the loosening up of our traffic. Travel times through the downtown area have been reduced as much as 30% without the necessity of removing any additional parking. In fact, we removed the 4-P.M.-to-6-P.M. restriction on several block faces; we now have only two block faces with this restriction and these have been retained to prevent double parking while picking up passengers during the afternoon rush. Incidentally, the addition of these one-way streets has brought about 15% more traffic into the downtown area.

Our commuter problem is somewhat relieved in that most of the traffic coming from the southeast and west portions of the city has direct access to an 885-car free city parking lot just two blocks south of the business district. In addition, the city has within the last two years opened new parking lots scattered around other portions of the business area. These new lots provide off-street parking for an additional 246 cars.

Our chief problem in the downtown area comes from a poorly laid-out arterial-street system. About two-thirds of the traffic in the downtown area is passing through, rather than having the downtown business as its destination; it is there because there are no satisfactory alternative routes between the east and west portions of the city. This two thirds creates the occasional congestion that we have in this area. We have hopes of alleviating this through the introduction of additional alternative streets around our business district. The opportunity for this is presented through the development of the city's first major street plan and through the relocation of many streets and bridges in the construction of the $18,500,000 Floyd Valley Flood Way just east of the business district.

The traffic-signal system in the downtown area of Sioux City has been a single-dial interconnected system for several years. However, within the last year we have converted it to a three-dial Monotrol

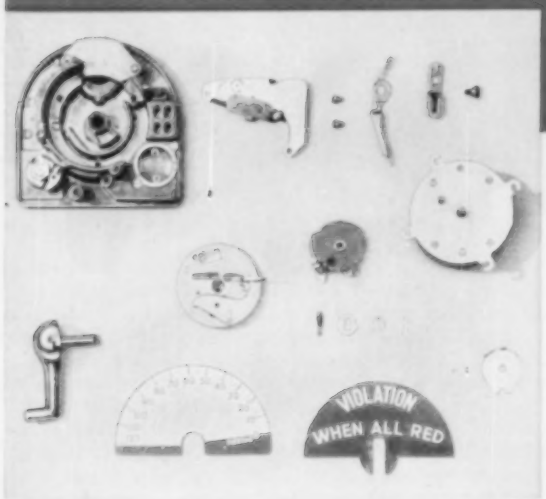
The master unit of a three-intersection system of semi-actuated Crouse Hinds SVA-111 controllers with triple dial background cycle and triple offsets. The Kerrigan 25-foot mast-arm pole supports Eagle signals with a 12-inch red face.

system and are now using several cycles and offsets to facilitate the movement of traffic. We have had considerable success with these changes and are very pleased with the results. This year we are going to add five additional intersections to the present twenty-two interconnected intersections operating on the downtown Monotrol master unit. After this work is complete there will probably be no other signals added to the master for several years. We currently have only two interconnected systems outside of the central business area; each involves three intersections. One system is a three-dial system with a local master. The other system is a semi-actuated system with a monitoring background cycle to control three different progres-

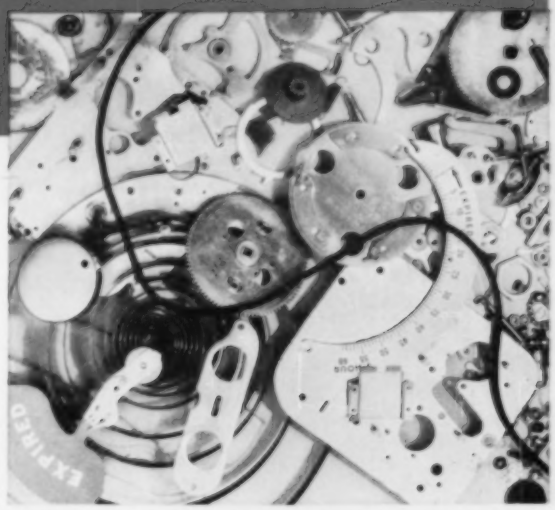
(Continued on page 125)

1/3 LESS PARTS IN "MARK-TIME" PARKING METERS

MEANS LESS MAINTENANCE!



Note the simple uncluttered design of the few operating parts in the "MARK-TIME" meter.



In contrast, note the many parts used in a typical automatic meter which requires a skilled clock-maker to repair and service.

Remember: ANY "MARK-TIME" METER CAN BE SERVICED USING BARE HANDS AND A SCREW DRIVER.

More parts mean more trouble. Simplicity is the reason why more and more thousands of "MARK-TIME" meters are being bought. May we demonstrate first hand?

MARK-TIME®

M. H. RHODES, INC.

30 BARTHOLOMEW AVENUE
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IN CANADA
M. H. Rhodes, (Canada) Limited
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Cataphote crew lays long-lasting Catatherm on Eden's Expressway—Chicago.

Cleanly extruded Catatherm hits and bonds to pavement at approximately 400° F. Stripe is traffic-ready 3 to 6 minutes later.

Catatherm Reflective Thermoplastic Striping goes down easy . . . stays down longer

This is Eden's Expressway on Chicago's North Side . . . one of the world's busiest thoroughfares. Pavement markings of ordinary traffic paint have little chance of survival here.

To solve the problem of "short life" markings, the Illinois State Highway Department turned to Catatherm . . . Cataphote's reflective thermoplastic striping material. Composed of specially formulated thermoplastic resins, pigment and over 40% reflective traffic beads, Catatherm is hot extruded directly and securely onto any pavement . . . is available in white and yellow. Cataphote waterproof drop-on traffic beads, applied simultaneously with the extruding operation, provide immediate all-weather reflectance . . . add longer life to the stripe.

Catatherm can mean a brighter safety picture for *you* in the actual striping operation. Striping equipment at work creates a traffic hazard . . . the possibility of accident is always present. Drastically reduce restriping and this danger is virtually eliminated. You can do this with Catatherm . . . it outlasts good quality paint stripes from 9 to 26 times . . . saves plenty of maintenance dollars, too.

Pace setters in traffic control have recognized the advantages of Catatherm. Now, they "STRIPE IT . . . AND FORGET IT." Like to be a leader, too? Let us tell you more about Catatherm. Write for Catalog C-160.

CATAPHOTE CORPORATION

TOLEDO 10, OHIO / JACKSON, MISSISSIPPI

MANUFACTURERS OF REFLECTIVE TRAFFIC CONTROL PRODUCTS

The paint machines were photographed in the 885-car free parking lot of the 5,000-seat Sioux City Municipal Auditorium. The machine on the right, in front of the G.M.C. pick-up, is a ten-gallon Kelly Cresswell B-3-P used for marking crosswalks and other small jobs. The machine on the left, in front of the International pick-up, is a 30-gallon Mark Rite 9000 Line Master made by Unimasco, Inc., Gardena, Calif., used for lane and centerline work.

(Continued from page 122)

sions. This summer we expect to add one more interconnected area and that will be a volume-density signal which will monitor several different progressions between nearby semi-actuated units.

As a part of our signal-modernization program, other than interconnecting signals, we are installing only semi-actuated signals at new locations in outlying areas and have removed over 15 very old fixed-time units and replaced them with either triple-dial units or semi-actuated units. In some cases where we have used the triple-dial units, it is only a temporary measure until some construction activity in the area is cleared up and we can install actuated equipment.

We have a regularly programmed series of improvements budgeted for our signal system. This year concludes the third year of a three-year program for the modernization of all the central-business-district signals. Last year we installed our first "Walk-Don't Walk" signals at three intersections in the downtown area. They have proven so satisfactory to pedestrians and drivers that we are going to add an additional six intersections this year. In 1961 we will conclude the second year of a five-year program for the modernization of outlying signals. In addition to this, we have scheduled two new signals yearly.

Painting Schedule

We paint our heavily traveled streets four times a year and schedule it to maintain very clear paint lines at all times. We begin painting at the earliest possible date in the spring with plain paint. We consider this as a base coat for our reflectorized paint which we apply two weeks later. We feel this gives us much greater durability and in the long run is much less expensive. Several months later, after the lines begin to show wear, we repaint and then just before fall we repaint once again. This frequent painting keeps our lines in excellent condition and "carries" them through the winter. Our other arterial streets with lower volumes of traffic are painted one to three times per year.

Since the cost of painting a street is chiefly that of labor I have always followed the practice of using high-speed equipment to minimize the labor involved. Also it makes a greater "splash" for the public to see and requires tying up traffic a shorter length of time. One side advantage of having high-speed equipment is that the crews can be switched to other jobs or special projects in order to execute them with dispatch. In the past year we had to do this in order to install the one-way streets, to arrange for a series of detours because of highway construction, and to conclude a program of removing parking spaces within 20 feet of intersections. One additional point, high speed equipment allows our crews to do the work during the daytime during the lower traffic periods rather than having to work at night and be exposed to the difficulties of night work, dampness and the hazards of inadequate visibility. Our equipment allows repainting of all through streets (52 miles not including 39 miles of state-painted highways) in about two weeks at an average labor cost of only $17.42 per mile.

NORMAN C. BARNETT
City Traffic Engineer

Don't Kill The Parking-Meter Hen

When the stronger the medicine the bigger the fee, watch the doctor. In 1959 the City of San Diego doubled the penalty for parking violations.

The result was that uptown merchants obtained 31,000 signatures on a petition to remove the meters. The city has not taken action on this petition as the city is appealing a court decision on the legal questions involved in an initiative petition dealing with city ordinances. Whether this item is submitted to the voters will depend on the outcome of the pending court action.

In fiscal 1959, the meters collected $535,718. Maintenance, repairs and depreciation amounted to $118,836. New rates in the first five months of 1960 collected $367,555 compared with $223,631 last year, and violations produced $132,546.

The city's answer was first, that the higher rates caused a faster turnover of cars on the congested streets. Second, costs to regulate traffic have increased.

The merchants' alternative is: restore the old rates or the people will vote on the meters. ◄◄

TRAFFIC FINES PAID "ON THE SPOT"

WITH

DUNCAN FINE-O-METER

After installation . . . cities report up to 80% of all parking fines collected are paid "on the spot" in DUNCAN FINE-O-METER boxes.

This effective, convenient system eliminates *embarrassing* trips to the police station thereby increasing voluntary payment without complaint. Also, *reduces* the number of tourist violators leaving city without paying fine.

Weather-proofed violation ticket-envelopes used with the DUNCAN FINE-O-METER are readily available at low quantity prices. New "heavy-duty" ticket envelopes, especially prepared to withstand long periods of exposure to extreme moisture now available for prompt shipment.

For good public relations . . . investigate DUNCAN'S convenient system of traffic fine collection.

MOTORIST PAYS FINE "ON THE SPOT"

ea$y...convenient!

OFFICER ISSUES TICKET-ENVELOPE

EASY TO COLLECT

DUNCAN PARKING METER

A Division of NAUTEC Corporation

CHICAGO 22, ILLINOIS

These two pictures show how the new lights brighten the residential districts.

Safer Streets in Ridgway

By **W. E. SEACHRIST**, Borough Manager

The Borough of Ridgway is located in a pleasant valley in the heart of the Allegheny Mountains in Western Pennsylvania, 130 miles northeast of Pittsburgh. A vigorous county seat with some 6,500 people, Ridgway has industry, recreation, good schools and banking. While proud of its history, it is equally proud of its modern services to both its citizens and the traveling public. The borough solons have long-range plans for further improvements.

The business district of Ridgway has been well lighted at night for a decade. This lighting consists of 5,000-lumen incandescent lamps on ornamental 30-foot poles located opposite each other with 90-foot spacings.

Last year, the borough officials took a good hard look at the lighting conditions on its traffic arteries and residential streets. Many of these streets serving fine homes are heavily shaded by trees which grow vigorously in this country. A survey resulted in a formal report to the council. It recommended a planned program of relighting these areas. This study, made by West Penn Power Co., was submitted to the council by the borough manager with the further recommendation that the improvements might be done on an orderly basis over a period of time.

The council decided to do it now because good residential street lighting is good civic advertising. Good lighting affords protection for unescorted women and children. Though deliquency here has not been a major problem, a well lighted street is an aid to the police department, a deterrent to vandalism and crime.

The West Penn Power Co. was authorized to install 120 new 2,500-lumen incandescent lamps and trim trees. Most of the equipment used is made by Westinghouse Electric Corp. The West Penn Power Co., which serves this area, made the complete investment for these improvements. Lighting on some streets was more than doubled and spacings were brought in line with modern street-lighting practice. The cost to the borough is nominal compared with the values of safety and protection afforded. A 30% increase in the annual lighting budget gave a 42% increase in illumination.

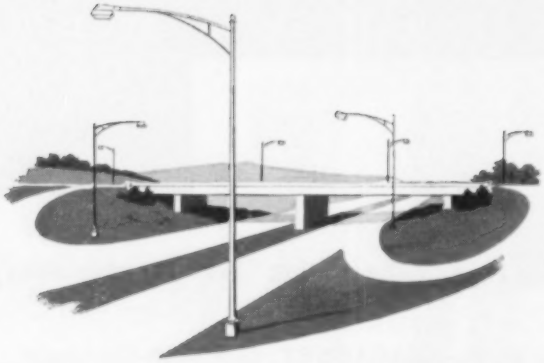
Burgess A. Perrin Shanley, who supervises the police department says, "I have had many complimentary comments, not only from our own people but from folks in the surrounding area who enjoy coming, with safety, to visit and shop with us." This compliment is confirmed by Chief of Police Harry Hill who has remarked that traffic now moves at reasonable speed with safety for all. ◄◄

for street lighting • highway lighting • floodlighting

UNION METAL MONOTUBE POLES

Monotube street lighting poles . . . steel or aluminum . . . round or fluted . . . davit or bracket styling . . . anchor or transformer base. Attractive in any location. Continuous-tapered Monotube poles are available in a broad range of designs and sizes to meet all requirements.

Monotube highway lighting poles are offered for various mounting heights and strength requirements. Easily wired and installed. Steel Monotubes are made from high grade, open hearth steel and cold-rolled for strength. Aluminum poles are either cold-rolled or spun.



Monotube floodlighting poles . . . for sports, business, industrial or recreational areas. Available in heights from 20 to 100 feet. Monotube designs permit extreme flexibility in arrangement and number of light units per pole. Floodlights can be mounted, positioned and wired while pole is on the ground.

Complete design and specification data is readily available upon request. Write The Union Metal Manufacturing Company, Canton 5, Ohio. In Canada: The Union Metal Manufacturing Company of Canada, Limited, Brampton, Ontario.

UNION METAL

Monotube Lighting Poles

On Main Street the uprights which have been doling out 0.3 footcandle since 1918 have been replaced by 700-watt, 35,000-lumen mercury-vapor luminaires of the integral-ballast type, giving 3.5 footcandles.

Hopkinsville's Relighting Detailed

In Hopkinsville, Ky., in 1918, street-lighting standards were installed on Main Street from 5th to 14th and on Ninth Street from the L & N Railroad to Bethel Street. Sixty-five ornamental fixtures with post-top glassware and a 6,000-lumen lamp mounted at 11 feet provided 0.3 footcandle of illumination on the pavement.

In December 1957, the City of Hopkinsville was still lighted that way, with the addition of 56 enclosed incandescent luminaires mounted on wood poles with 4,000-lumen lamps, 34 mercury-vapor luminaires on steel poles with 20,000-lumen mercury-vapor lamps, and 426 of the old open radial wave reflector fixtures with 2,500-lumen lamps, 581 lamps in all. At this time, $77,367 was invested in the street-lighting system. During 1957 electric power cost $5,141 and an investment charge of $7,372 was paid to the Electric Plant Board for a total of $12,514.

In 1958, an extensive street-lighting program was inaugurated. Seventy-two mercury-vapor luminaires with 20,000-lumen lamps were installed on Fort Campbell Boulevard, a new four-lane highway entering Hopkinsville. This is a series system of the ballastless type fed by two overhead circuits. Fixtures were installed at 75-foot staggered spacing. The result was a maintained illumination of 1.4 footcandles on the pavement. The installed cost of this project was $29,548.

Walnut Street and 21st Street are now lighted with 43 mercury vapor luminaires with 20,000-lumen lamps. This overhead system was a 480-volt multiple system, selected because trees make lower voltage desirable. Existing wood poles were utilized. The cost of this project was $7,514; the average maintained illumination is 1.1 footcandles.

Fourth Street from Main to Clay and Liberty Street from Fourth to Ninth were next, with lighting identical to Walnut Street except for the slightly higher 1.5 footcandles. The 21 fixtures on this project were installed for $3,448.

Relighting the main business district involved replacement of the ornamental system. Forty-nine integral ballast 700-watt, 34,500-lumen mercury lamps were installed on 30-foot steel poles. All supply and control cables, made by Phelps Dodge Copper Products Corp., New York, were installed beneath the pavement in galvanized conduit. Conductors provided for 1,000 watts of festoon lighting on each pole for Christmas. A light level far in excess of IES standards was created. The 80-foot staggered spacing on the 40-foot streets gives an average illumination of

(Continued on page 130)

The new white-way mercury-vapor luminaires, up 30 feet, contrast with the 42-year-old lights on ornamental posts.

(Continued from page 129)

3.3 footcandles. Ten 400-watt mercury-vapor fixtures were also installed on a major cross street. Cost for the 59 fixtures with underground supply installed was $38,915.

Nine blocks of Virginia Street were lighted in the same way as Main Street, except for overhead serial cable, with spacing 100-foot staggered. The resulting illumination was 2.5 footcandles. These 19 fixtures replaced nine open radial-wave lights of 2,500 lumens; cost, $7,359.

Ninety-eight additional 400-watt mercury vapor luminaires were installed on the cross streets to complete the 40-block area of the downtown district. Lighting levels in this area were designed for two footcandles. Cost of this project was $23,920.

Greater Safety

Progress has also been made in the residential district. All 4,000-lumen lamps have been replaced with 6,000-lumen lamps; 88 of the radial-wave lights have been replaced with modern luminaires with 6,000-lumen lamps. One hundred and seventy eight additional 6,000-lumen lamps are presently being installed in the residential area at a cost of $15,300. All 2,500-lumen open fixtures will give way to enclosed fixtures with 6,000-lumen lamps.

There are now 1,356 units consisting of 371 mercury-vapor lights (68 or 700 watts; 278 of 400 watts; 25 of 175 watts); 582 enclosed incandescent luminaires with 6,000-lumen lamps; 403 radial waves of 2,500 lumens. The investment is $244,000. The annual street-lighting cost to the city is $32,310, $19,520 for investment charge and $12,790 for electrical energy.

The 700-watt luminaires are a new design. They were the first 700-watt luminaires to incorporate the ballast within the housing. The lighting levels are approximately 2½ times the levels recommended by IES for streets of the classification on which they were installed.

Basking in the modern light are James Cassady, president of the Chamber of Commerce, Mayor Lackey, Miss Juanita Thweatt, Chamber secretary, and W. W. Bryan, executive secretary of the Chamber.

Mercury-vapor luminaires were manufactured by Line Material Industries, Milwaukee, Wis., the General Electric Company, and the Westinghouse Electric Corporation.

The steel poles were manufactured by Kerrigan Iron Works, Nashville, Tenn., and the Union Metal Manufacturing Co., Canton, Ohio.

F. Ernest Lackey
Mayor

A New Outdoor Lamp on the Way

Laboratory development of a light source that combines high light output with color quality has been announced by Donald D. Scarff, general manager of the General Electric Company's Large Lamp Department, Cleveland 12, Ohio.

The new lamps are metallic-vapor types which fall into the family of electric discharge lamps which includes fluorescent and mercury lamps.

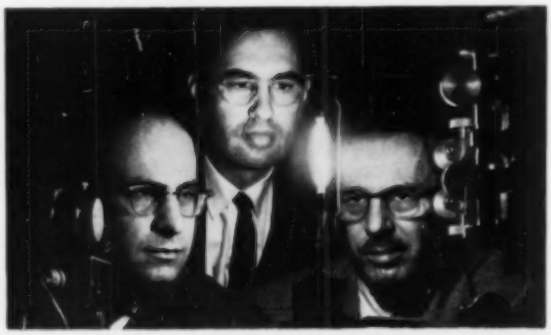
They are the first to use thin, tubular envelopes made of the polycrystalline alumina ceramic, Lucalox.

Higher Pressures and Temperatures

The qualities of Lucalox ceramics permit the use of alkali metal vapors at higher pressures and temperatures than were ever before practical.

Mr. Scarff said that "the laboratory discovery is important because Lucalox ceramics make feasible the investigation of light and color from metallic vapors not usable in previously available bulb materials; because the new lamps may operate in air, requiring no external envelope; because their good energy distribution throughout the light spectrum makes possible excellent color quality without the need for phosphor or other coatings used on many other types of lamps; and because of their small size (about that of a king-size cigarette) furthering the long-term trend of greater light output from smaller and smaller sources. The new lamps potentially have important advantages over existing vapor discharge types."

If marketed, these lamps will find primary usage in industrial, commercial, defense, and street lighting and other outdoor applications. ◄◄



Lamp scientists Dr. Kurt Schmidt, William Louden, and Elemer Homonnay made possible this first high-pressure alkali metallic vapor lamp, using Lucalox, a translucent synthetic ceramic developed by the General Electric Research Laboratory.

Inconspicuous antenna has spotlight appearance. Exclusive window mounted antenna bracket keeps cruiser constantly available for emergency use.

RADAR SPEED CHECKS NOW EASIER, MORE ACCURATE, MORE RELIABLE . . .

WITH NEW ELECTRO-MATIC MODEL S-5 RADAR SPEED METER

Three lightweight, compact units — (1) true spotlight antenna (2) book-size chassis unit, and (3) easy reading indicator — all readily mounted from driver's seat without tools.

Installation is quick, simple and convenient. Cigar lighter plug-in.

One or two man operation depending upon manpower and type of traffic.

Meter is adaptable to all types of roadways. Three switch-selected ranges — short, medium and long — to 500′ on cars (more on trucks).

Meter provides clean, steady readings.

Narrow beam — focuses on intended lane.

Antenna is operable in any weather. No prongs or protrusions. No rain cover needed.

Fully transistorized circuitry is not affected by extreme temperatures or rough handling.

TWO YEAR GUARANTEE . . .

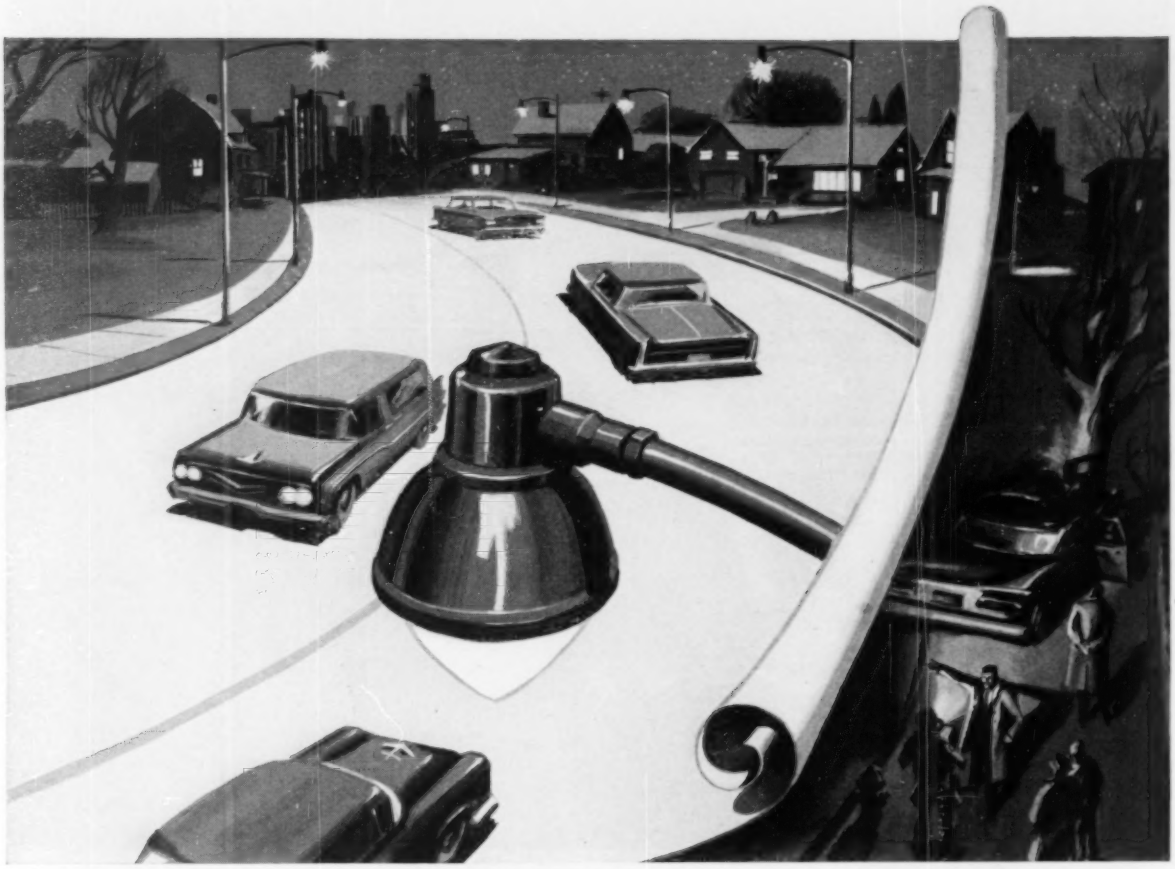
covers all parts against defects in workmanship and material for two years, except transmitting tube is 2000 hours or one year.

Write for Bulletin R-115

AUTOMATIC SIGNAL DIVISION

EASTERN INDUSTRIES, INC. NORWALK, CONNECTICUT

ELECTRO-MATIC CONTROL



How Sylvania Mercury Banner Lamps can help lower your accident rate—and your TCL

Sylvania up-to-date street lighting saves more than it costs! In one city better street lighting cut nighttime traffic deaths from 9 times the day rate to twice the day rate.

Another city reports better nighttime street lighting is saving 50 lives a year.

A Western city discovered better street lighting in one area cut pedestrian accidents by 43.3%.

How about your town?

New Sylvania Banner Mercury Lamps not only put *2½ times more light* on the street than incandescent lamps *for the same power cost*, they also give you these five extras:

1. Life extended to 12,000 hours with trimetallic electrodes.

2. More light output initially and higher maintained light.

3. Exclusive Ruggedized construction, *built-in* protection against shock, vibration, temperature extremes.

4. Life recording base keeps its own performance record.

5. Certified Performance Policy guarantees that "Banner Mercury Lamps may be returned to the supplier for full exchange if they fail in less than 1000 burning hours, and thereafter (up to 5,000 hours) for pro-rata exchange in accordance with a pro-rata exchange value table set forth clearly in the policy form."

Let Sylvania help improve your accident record and lower TCL . . . Total Cost of Lighting (cost of lamps plus power plus maintenance). Call your Sylvania representative, or write: Lighting Division, Sylvania Electric Products Inc., Dept. 635,60 Boston St., Salem, Mass. In Canada: Sylvania Electric (Canada) Ltd., Montreal.

SYLVANIA

Subsidiary of **GENERAL TELEPHONE & ELECTRONICS** GENERAL SYSTEM

The Meyerland residential area in Houston is lighted by General Electric filament luminaires which direct the light onto pavement rather than onto lawns and against houses.

Subdivision Lighting a Selling Point

Since prospective home buyers generally have more free time for house hunting at night, a development company in Houston, Texas, has lighted its development, Meyerland Plaza, with conventional residential-street-lighting fixtures supplied by the General Electric Co.

According to T. A. Robinson, Jr., organizer and first president of Meyerland Co., "Not only does the street-lighting installation attract more customers at night, it also provides us with an additional selling point. We find that more and more people recognize the advantages of good street lighting. It makes the streets safer for pedestrians, is a major deterrent to crime, and provides a more attractive neighborhood by night. With the modern lighting fixtures now available, we no longer have to fight the old problem of people who 'don't want all that light in my bedroom window,' for the filament units that we use put the light right on the pavement."

Meyerland Plaza is a 2,500-unit housing development built in conjunction with, and adjacent to, a 75-acre shopping center, called Meyerland Plaza.

The 364 luminaires are mounted on 20-foot steel poles with four-foot upsweep brackets. Each unit produces 2,500 lumens of light. The average maintained illumination level is 0.2 footcandles. ◄◄

Better Business and Less Crime

A year ago downtown Dubuque, Iowa, began sporting a fluorescent street-lighting system. Reports have it that it has reduced traffic accidents and crime and has stimulated the cash registers at night. Dubuque's downtown merchants, who bore the cost of the entire system, are happy about all three results.

Initiated jointly by the Chamber of Commerce Merchants Committee and the City Council, the lighting system covers 27 blocks. General Electric six-lamp luminaires were installed on Main Street; four-lamp units in the remainder of the downtown area.

The new units are four to a block—two on each side of the street on 30-foot davit-type poles, supplied by the Union Metal Manufacturing Co. Main Street now has about 2.8 footcandles of maintained illumination, or about five times the brightness of its previous, outdated incandescent fixtures. About 1.7 footcandles is maintained in the balance of the downtown business area.

The cost of the project is being borne by adjoining property owners at a charge of $10.09 per foot on Main Street and $8.23 per foot on the other newly lighted streets. The total cost was $116,700, which included some extensive rewiring. In fact, most of the cost was in the tearing up of sidewalks, installing underground conduits and the wiring.

Sample Installations

To make certain that Dubuque was getting the best lighting possible, sample fluorescent installations were made at the fringe of the downtown area. "They were almost overwhelmingly accepted," reported City Manager Lavern Schlitz.

"New lights cut down crime and auto thefts to help build up the downtown area," Kenneth Hartig, chairman of the Chamber of Commerce's Merchants' Bureau, reported. "This is another step in our program of keeping our community progressive."

Mayor Charles A. Kitzinger declared at the time, "Dubuque has emerged from the dungeon-like gloom to iridescence."

KEN L. CULLEN
City Engineer
Dubuque, Iowa

What do You look for in a FLOODLIGHT?

(Check the features on this page before you decide)

Are you looking for easier installation . . . aiming . . . maintenance . . . relamping? Higher efficiency? *Permanent* weathertightness? Pre-wiring? Corrosion resistance?

Check and compare the features below before you decide on a floodlight. They tell why the Crouse-Hinds FLA gives more light at lower cost with less maintenance over a longer life!

FEATURES	CROUSE-HINDS TYPE FLA	Mfr. A	Mfr. B	Mfr. C	Mfr. D	Mfr. E	Mfr. F
1. Does it have a back door for easier lamp replacement and cleaning?	Yes	Yes	No	Yes	Yes	Yes	No
2. Does it have a stop to hold rear door open?	Yes	No	No	Yes	No	No	No
3. Does it have a cast aluminum rear reflector housing?	Yes	No	No	No	No	Yes	No
4. Is there a sight on the axis for more accurate aiming?	Yes	No	No	Yes	No	Yes	No
5. Are the door catches adequate for permanent weather tightness?	Yes	No	Yes	No	Yes	Yes	No
6. Is the floodlight wired, eliminating additional costs?	Yes	No	Yes	No	Yes	Yes	No
7. Is the socket shell plated to prevent corrosion and lamps "freezing" in?	Yes	Yes	Yes	Yes	No	No	Yes
8. What is the socket temperature? (UL maximum safe operating temperature 200°C.)	185°C	221°C	226°C	227°C	269°C	211°C	241°C
9. What is the cable temperature (to minimize insulation deterioration)?	135°C	127°C	202°C	150°C	231°C	173°C	162°C
10. Is the lens heat-tempered to prevent breakage?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11. Is the lens spun-sealed to reflector for positive dust and rain seal?	Yes	Yes	No	Yes	Yes	Yes	No
12. Will the entire floodlight withstand the UL rain test?	Yes	No	Yes	Yes	No	No	Yes
13. Are the gaskets adequate for permanent weather-tightness?	Yes	No	No	Yes	Yes	No	Yes
14. Is the floodlight rigidly constructed for longer life and accurate aiming?	Yes	No	Yes	No	Yes	Yes	No
15. Can you rotate the wire entrance to simplify wiring?	Yes	No	No	No	No	No	No
16. How many beam spreads are available and what are their efficiencies?							
14°	45.3%	44.8%	44.8%	N.M.*	N.M.	N.A.**	40.4%
20°	44.9%	45.4%	43.8%	41.2%	N.A.	N.A.	40.7%
35°	48.6%	53.0%	49.1%	50.5%	45.2%	N.A.	45.8%
50°	50.2%	N.M.	N.M.	N.A.	N.M.	N.A.	50.4%
80°	57.8%	60.0%	57.5%	N.A.	N.A.	N.A.	55.5%

*Not made by this company. **Information not available.

Want us to back it up? Send for our Bulletins on floodlighting . . . or better still, ask for a Crouse-Hinds illuminating engineer to help out on a specific problem.

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SYRACUSE NEW YORK

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The City Tells Its Story

Edited by PAN DODD EIMON

Municipal Public Relations

Periodic Reports

"As stockholders in the corporation of a municipality," City Manager Meno Wilhelms says, "our citizens and taxpayers are entitled to receive annual and periodic reports indicating the condition of city business. Periodic reporting is an absolute necessity for effective local government." This is what Manager Wilhelms told fellow managers, mayors, and other city officials at the 66th National Conference on Government. How he reports to his own people in Santa Fe Springs, Calif., is detailed below.

Family Close-up

The outstanding report of Kingsport, Tenn. (a biennial publication), is analyzed here first.

The idea — presenting the city's story through the eyes of one family —isn't a new one. But Kingsport, Tenn., has put this idea into handsome format, embellished it with page-filling photographs, concise writing, dramatic layouts, an unusual cover. The result is as handsome a publication as citizens anywhere will get this or any other fiscal year.

The booklet measures 7 by 9 inches and has 32 pages together with cover. Each picture fills an entire page. They are story-telling, sharp, unusual. For city finances, for example, the photograph is taken from behind a drive-in mailbox and shows Harry Trent, head of the featured family, mailing his check for Kingsport taxes. Another photograph, this one illustrating the two pages on public works, is taken from this side of a lawn sprinkler, its white spray partially blotting out the members of the family who are working in the yard.

The text says, "The Trents and more than 11,000 other consumers used 3,343,110,000 gallons of city water (in the two-year period). About 160,000 of the more than 262,000 water bills were paid in person at City Hall. New water pipe installed by the Public Works Department measured 8.6 miles. More than 70% of all streets and alleys within the city limits are paved. City trucks made 7,000 calls each week to collect our garbage and trash. City vehicles of all types used 190,000 gallons of gasoline and diesel fuel."

Just below the narrative, there is this picture cutline: "Plenty of sprinkling keeps the Trent's lawn 'good and green,' even in dry midsummer."

The text is set in 12 point type and is centered in the page facing its illustrative photograph. There's no attempt to cut or stretch copy so the amount of copy for each unit of city government is the same. Ample white space is left on each page of type.

The Kingsport report ingeniously manages a word about new city hall plans. A close up shows Mr. and Mrs. Trent with City Manager C. K. Marsh looking over plans for the new building, on the site. Another page deals with new construction and planned expansion (non-governmental) and is illustrated by a picture of the Trents watching a new motel take shape.

Kingsport's eye-catching cover is in two parts. There's a stiff cover in color—an overall line drawing of products made in Kingsport with full-color portraits of the five family members of the Trent family inset and the words "a family close-up." Bound over this is a thin white paper bearing the city seal in gold, "biennial report," and the city's name and state. Through this overlay the cover is visible.

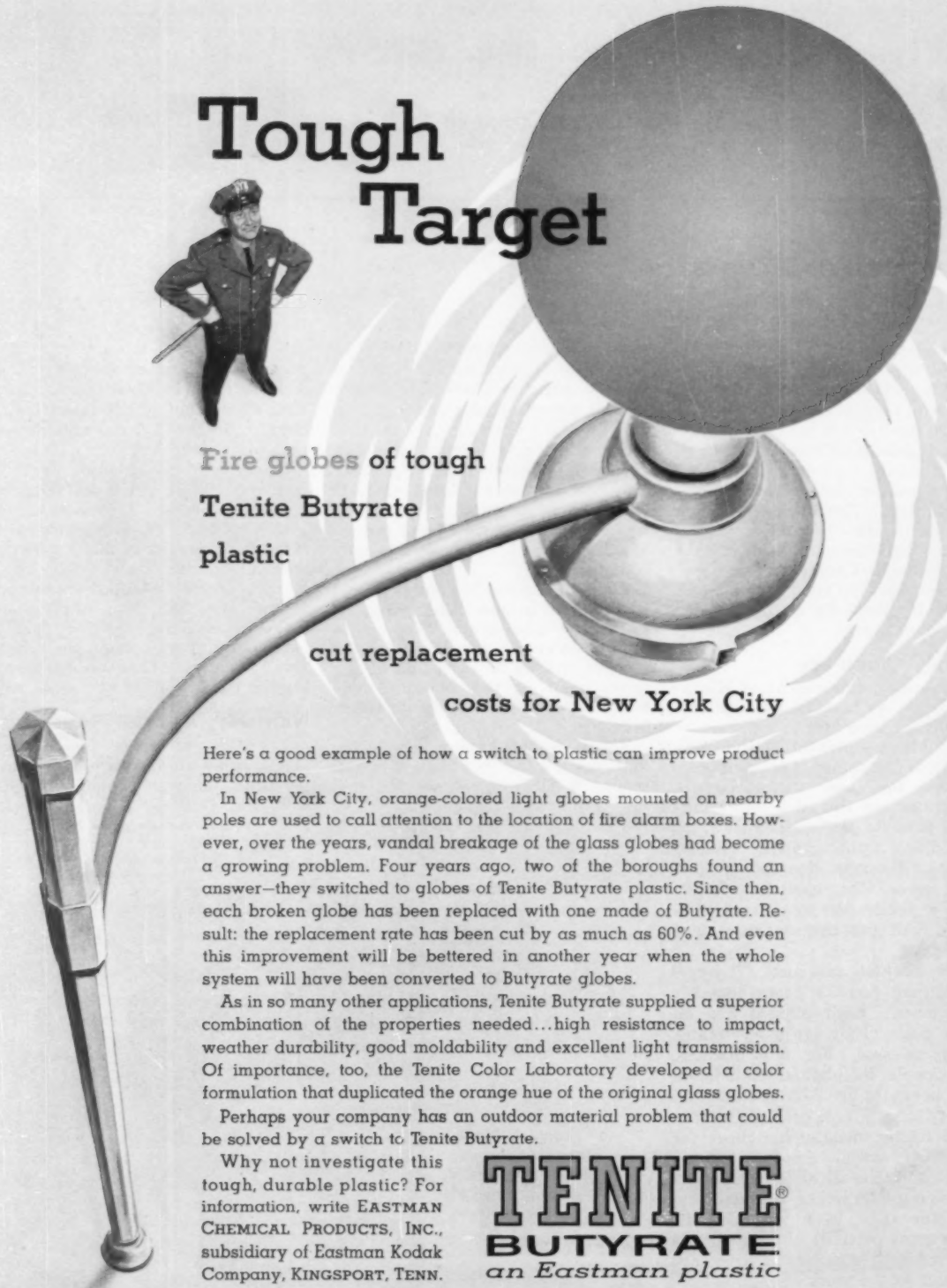
Monthly, Annual Reports

The City of Santa Fe Springs, Calif., issues an annual report. And, as City Manager Meno Wilhelms told the National Conference on

(Continued on page 137)

The Trent family illustrated the use which Kingsport's citizens make of city services.

Tough Target



Fire globes of tough Tenite Butyrate plastic cut replacement costs for New York City

Here's a good example of how a switch to plastic can improve product performance.

In New York City, orange-colored light globes mounted on nearby poles are used to call attention to the location of fire alarm boxes. However, over the years, vandal breakage of the glass globes had become a growing problem. Four years ago, two of the boroughs found an answer—they switched to globes of Tenite Butyrate plastic. Since then, each broken globe has been replaced with one made of Butyrate. Result: the replacement rate has been cut by as much as 60%. And even this improvement will be bettered in another year when the whole system will have been converted to Butyrate globes.

As in so many other applications, Tenite Butyrate supplied a superior combination of the properties needed...high resistance to impact, weather durability, good moldability and excellent light transmission. Of importance, too, the Tenite Color Laboratory developed a color formulation that duplicated the orange hue of the original glass globes.

Perhaps your company has an outdoor material problem that could be solved by a switch to Tenite Butyrate.

Why not investigate this tough, durable plastic? For information, write EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENN.

TENITE®
BUTYRATE
an Eastman plastic

Fire globes molded of Tenite Butyrate by A. L. Hyde Co., Grenloch, N. J., for The Welsbach Corporation, Philadelphia 2, Pa., which does street lighting maintenance for the City of New York. Commenting on the considerable reduction in replacements since switching to Butyrate, Welsbach's New York City manager says, *"Butyrate's resistance to shock is so great that no replacement is necessary when the globes are pierced by BB shot or even small bullets. They resist damage from small stones, and even large rocks will only tear the Butyrate, leaving the globe in serviceable condition."*

(Continued from page 135)

Government, the city also issues a monthly newspaper. Both are important, he says, the newsletter "to create interest" in day-to-day city business, the annual report "to document information that will be used as a reference for many years."

The city's monthly publication is multilithed on 8½-by-11-inch paper, both sides. The masthead features photographs of councilmen and says "Your city council presents the City of Santa Fe Springs NEWSLETTER."

Each month the newsletter is printed in a different color on white stock. Key words and phrases are underlined or put in caps. The cost is 4 cents per copy (printing 1.4 cents; addressing and mailing 2.6 cents). Five thousand copies are produced, enough for every home in the community.

The annual report for Santa Fe Springs is long on pictures, short on narration. But its big 8½-by-11-inch pages provide ample space for both. Here's what Manager Wilhelms uses as a guide in work on the report.

"*Cover*—should be attractive. If possible, emphasize the past year's theme and definitely have a meaning to the content of the report.

"*Content*—should be documentary and cover last year's activities. Predict next year's work. Make presentation interesting, not just dull facts on how many policemen or firemen work for the city — how many storm drains or sewers were built, etc.

"*Readability* — use pictures and charts with a minimum amount of print. Design the report so that it is short enough that the average reader can cover the subject in five to ten minutes. Charts and pictures will be indelibly reproduced on the average reader's mind where printed matter will not.

"*Format* — layout is important. Every report must have factual information shown. Develop unique ways to present budget, revenue and expenditures. The annual report . . . has proved to be the best way to get your budget into every home in the community."

"Our citizens," Manager Wilhelms adds, "demand complete, continuous reporting so that they can meet the challenges in the future for good government in our city of Santa Fe Springs. ◄◄

made for play...

loves to work!

75 hp Starflite III by Evinrude—new 1961 version of boating's best-selling, big-powered outboard motor. New fixed-jet carburetion is combined with thermostat controlled engine temperature for peak efficiency under all conditions. Every advanced feature: Famous Jetstream Drive, electric starting, automatic choke, sea-going magneto ignition, two-way shock absorbers, quietest performance on the water. Smooth running V-4 engine with 89 cu. in. displacement attains full hp at leisurely 4500 rpm. High-torque, versatile power for a wide range of waterfront duties and commercial boating jobs. See your Evinrude dealer —listed in the Yellow Pages under "Outboard Motors."

Evinrude Motors, 4143 N. 27th Street, Milwaukee 16, Wis.
A Division of Outboard Marine Corporation
In Canada: Mfd. by Evinrude Motors, Peterborough

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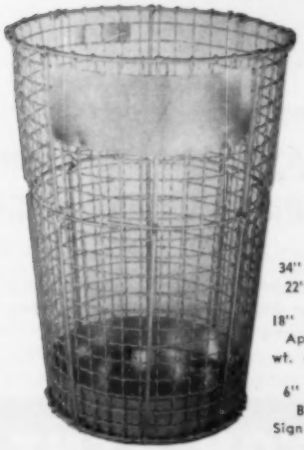
FIRST IN OUTBOARDS

LET THE PUBLIC *keep your* STREETS and PARKS CLEAN . . .

USE NORWICH STREET AND PARK BASKETS



34" Deep
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6" x 16" Blank Sign Plate

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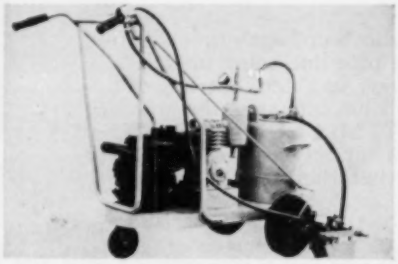

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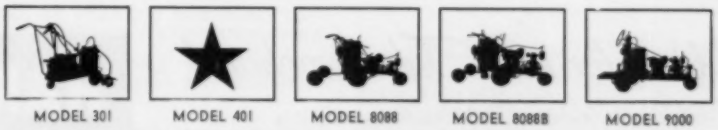
Hand Propelled

Mark-Rite LINE MARKER
PAINTS TRAFFIC GUIDE LINES BETTER . . .

★ Marks clear traffic lines on highways quickly and economically.
★ Easily marks cross-walks and safety zones.
This minimum priced marker offers advantages of larger and more costly striping machines. IT HAS SUCH FEATURES AS:—

- 2 cylinder, single stage automotive compressor with 9.3 CMF displacement, air cooled.
- Adjustable pressure control safety valve, gauge, moisture drain trap and valve.
- 1 cylinder, 4 cycle, air cooled gas engine developing 3. H.P.
- Paint tank has quick loading cover with one eccentric bar locking device.
- Spray gun is air actuated.
- Spray shields are located in line with front axle which never leaves ground. Shields are at pivot point of machine.
- Machine forms air blast to clean surface prior to painting.
- Gun control located on right handle bar with finger tip action.



FOR COMPLETE SPECIFICATIONS WRITE FOR THIS 16-PAGE CATALOG TODAY . . . Tells how to select the proper Line Marker for your Job.

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UNIVERSAL MANUFACTURING & SALES CO.
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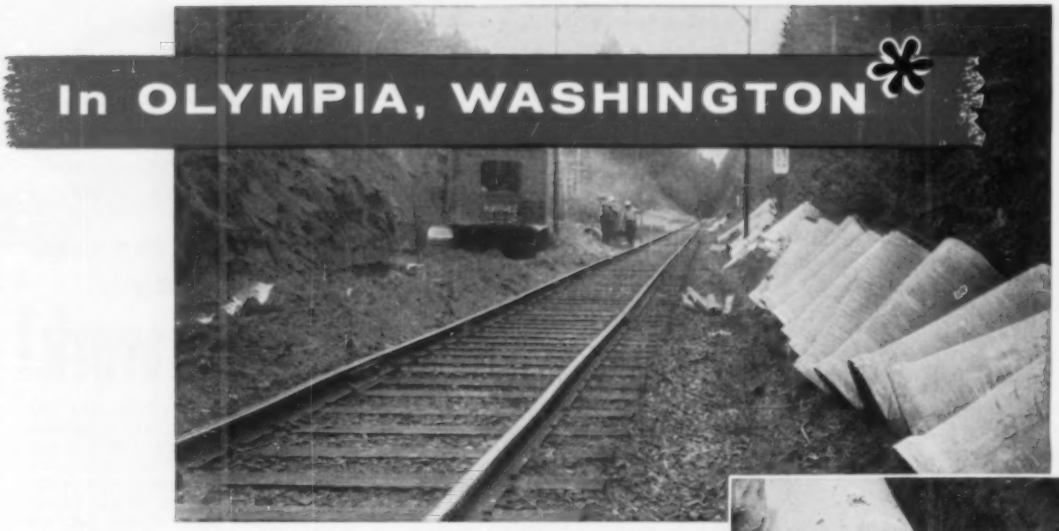


Vibration from speeding trains won't cause leaks in this

TYLOX-JOINTED SEWER LINE

Here's a mountain that gets "shook up" each time a train thunders through the cut. The pipe line being installed beside the tracks will get "shook up," too, but it won't spring leaks at the joints and thus endanger the stability of the roadbed. In specifying TYLOX RUBBER GASKETS for coupling the pipe, designers not only assured the safety of the railroad subgrade, but put their sewer project ahead in three important ways . . .

NO INFILTRATION—**Rubber** TYLOX seals by compression, preventing leakage in or out of the pipe. Cost of sewage treatment is reduced . . . root and sediment problems are eliminated.

NO JOINT FAILURES — **Flexible** TYLOX safely absorbs soil stresses, shock loads and severe vibration. Under ground and under compression it never deteriorates. TYLOX lasts for the life of the pipe itself.

NO INSTALLATION DELAYS—**fast working** TYLOX permits wet-trench jointing and immediate backfilling. TYLOX reduces pipe installation costs.

* **PROJECT:** Tumwater sanitary sewer, Olympia, Washington. (1500 ft. parallel to main line of the Union-Pacific Railroad into Olympia, Wash.)

ENGINEERS: Carey & Kramer, Consulting Engineers, Seattle, Washington.

CONTRACTOR: Harold Kaeser Co., Seattle Washington.

PIPE: Tylox-jointed 18" reinforced concrete, manufactured by **GRAYSTONE** of Olympia, Inc., Olympia, Washington.

5073

Write for new Tylox brochure!

Read the facts on TYLOX and see why it is specified for important pipe jobs all over the world. **Specify** TYLOX to assure economy, safety and longevity on **your** pipe projects.

HAMILTON KENT MANUFACTURING COMPANY

KENT, OHIO

427 West Grant Street **Orchard 3-9555**

Richmond's "Operation Share"

More than 700 items of men's, women's and children's clothing brought from closets and attics, from basements and garages, by city employees and distributed to other employees who needed such things for their families and themselves, became "Operation Share" in Richmond, Va.

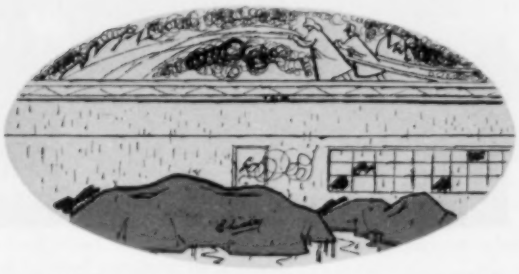
Suggested by the city manager at a meeting with his staff, it was organized by a committee of employees.

On December 12th, a notice went to all departments asking employees to search their closets and attics for clothes and blankets that they had stored away and knew they would not use again and to bring them to be shared with fellow employees who really needed them.

In the meantime, the public-works crew had cleared some lumber from one end of the new Operations Building at the Fairgrounds, leaving some pipes from the ceiling for clothing racks, and knocked together some rough shelves for small pieces.

While all this was going on, clothing began to flow in. Employees on their way to work stopped by the Fairgrounds and left suits, shirts, shoes and neckties, or brought them to the city hall lobby, fire engine houses and other places around the city where collecting points had been set up. Although the first call was only for men's clothing and blankets, women's and children's clothes began to be brought in and, of course, were accepted. Between December 16th and December 22nd, employees from every department and agency brought in 692 items of men's and women's clothing, plus miscellaneous toys and children's clothing. These items, incidentally, were clean and in good repair.

When "Operation Share" closed down for the Christmas weekend, 440 items of men's and women's clothing had been distributed to 108 employees and their families, plus toys and miscellaneous children's clothing. Every request had been filled and many a holiday had been made more comfortable and brighter. ◄◄



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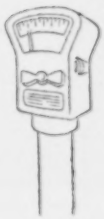

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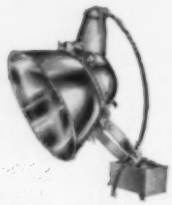

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A general neighborhood renewal program results in a new . . .

Blueprint for Bluefield, W. Va.

By RANDOLPH G. WHITTLE, Jr.*
and DEAN K. BOORMAN*

Only a short time ago, Bluefield was singing the municipal "blues." It had all the painful symptoms of deterioration. Some of its residential areas were running down; portions of the older business and industrial sections were showing signs of decay and traffic congestion was increasing. The city had tried some piecemeal corrective measures, proposing various public improvements to be financed by a bond issue but these had never inspired enough local confidence nor coordination to stimulate private rebuilding.

The city very obviously needed a coordinated plan. To prepare it, the city retained the New York consulting firm of Ebasco Services Inc. Its planners recommended the formation of an Urban Renewal Authority, the reactivation of the City Planning Commission, and made proposals on the initial project areas to be studied and the planning approach to be taken.

Pockets of Blight

The study disclosed that deterioration was not confined to a concentrated area. Because of Bluefield's mountainous topography, the blight was scattered in isolated pockets along the city's central valley. This suggested development of a series of related projects under a coordinated plan.

To carry out the projects, the city council asked for federal aid for a General Neighborhood Renewal Plan. Normally, only cities larger than Bluefield (present population about 19,000) use this approach. But Ebasco found, and the Urban Renewal Administration subsequently agreed, that a 425-acre section of Bluefield, nearly one-fourth of the city's developed area and including the entire central business district, was eligible.

Advantages

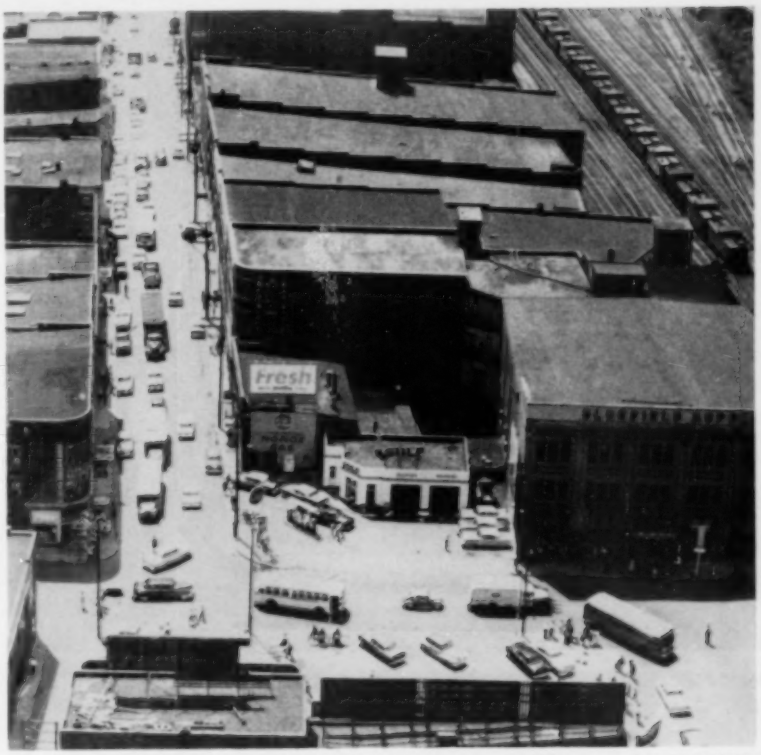
There are two principal advantages to the GNRP procedure, under which the federal government provides an initial planning advance and then capital grants for a series of related projects to be carried out over a ten-year period. It eliminates the dangers of a piecemeal attack on blight and deterioration by providing coordinated advance planning. It also has a financial advantage in that capital improvements made by the city in any part of a GNRP area become eligible for urban renewal non-cash grant credit even where installed before the individual projects are carried out.

Soon after the preliminary report, the city took action to put the program in motion. Mayor Courtney Tanner appointed a seven-member Urban Renewal Authority, drawn from members of the city's Board of Directors, the City Planning Commission, the Parking Authority, and the Citizens' Committee. Simultaneously the City Planning Commission began preparation of a master plan. An application was prepared and submitted to the Urban Renewal Administration for a GNRP planning advance of $43,700.

Upon approval of this application in January 1960, the city again retained Ebasco as planning consultant to initiate area-wide surveys and prepare a proposal for the first urban renewal project within the GNRP area. This was ready for city council approval in three months.

This first project contains the

(Continued on page 142)



The key proposal in the general neighborhood renewal program for Bluefield, W. Va., will be the clearing of the entire left side of Bluefield Avenue. This will eliminate the jog in the main thoroughfare and provide for expansion room in the city's important wholesale district.

* Mr. Whittle is City Manager, Bluefield, W. Va. Mr. Boorman is Senior Community Planning Consultant, Ebasco Services, Inc., 2 Rector St., N. Y.

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(Continued from page 141)

city's worst traffic bottleneck: the east end of Bluefield Avenue, on U. S. Route 460 in the crowded wholesale district.

The highway at this point will be widened and a bad intersection eliminated. Land will be provided for needed commercial expansion, parking and loading in order not to interfere with the movement of traffic. Housing which adjoins the commercial district will also be rehabilitated.

Approval is expected shortly for final planning funds for this first project (federal procedures allow final planning to begin on the first project while GNRP as a whole is still in preparation). When this approval comes, Bluefield will have three levels of planning proceeding simultaneously: final project planning, GNRP planning for the larger area of which this first project is a part, and community-wide master planning for the city as a whole. Each level will mesh with the others to provide a coordinated program which is both immediate and long-range.

For Bluefield, this three-level approach combines sound planning with fast action—a point of considerable importance where the time lag between planning and implementation is often great. ◄◄

Technical Advice On City Inspections

The Chicago Association of Consulting Engineers has established a committee to assist the public inspection bureaus of local communities having to do with design and installation of plumbing, heating, ventilating, electrical, sanitation and structural work. This committee is officially called "Chicago Association of Consulting Engineers Committee for the Study and Re-Examination of Better and Safer Construction Methods for Protection of Public, Health, Safety and Welfare."

The committee is prepared to assist with technical advice in these five fields:

1. Revisions and modernization.

2. Assistance in writing of building code revisions.

3. Engineering evaluation for compliance with building codes in force.

4. Aid in determining the extent of violation of existing local building codes.

5. Public service to law enforcing bodies, blue ribbon jury duty, expert witness, etc. ◄◄

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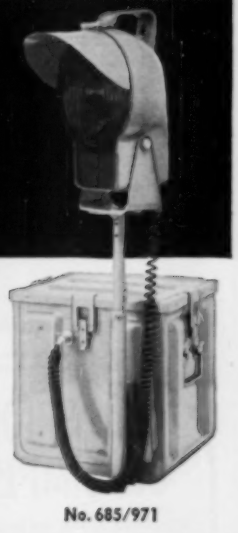

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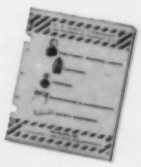

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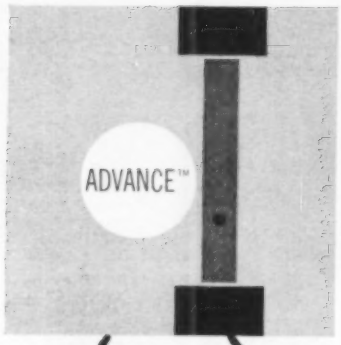

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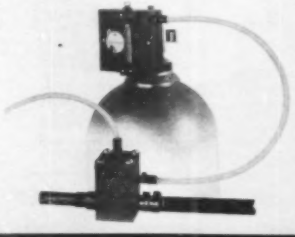

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What a City Manager Should Do For His City Council

By JOSEPH McDOWELL MITCHELL
Manager, Newburgh, N. Y.

I believe a city manager should be able to offer the governing body or council the following:

1. An administration which serves the council's wishes and reflects credit upon its members.

2. Council coordination which enables each member to know what is going on in City Hall but which is at the same time impartial to each councilman.

3. Council agenda which covers all pending business, supported by

complete reports on every decision required of the council, and constructed and moderated so as to impress the public favorably with the way council conducts its affairs.

4. Public relations between the government and the business people, civic groups, and individual citizens, which makes each feel that it has the friendly cooperation of the council.

5. Wherever contact between city employees and the public occurs, actions and behavior of city employees which reflect the policies of council, and which leave with the public the most favorable impression possible.

6. A press-relations program which keeps the press informed and aims at press cooperation and support for the council and council policies.

7. A loyalty to the council from the manager in all matters at all times, and a desire by him to shun political involvement.

8. Cooperation between the manager and appointed boards to guarantee coordination, yet utilize the individual talents of each of the citizen members to the greatest extent possible.

9. Relations between the manager and the department heads which give them maximum incentive and latitude, within the framework of council policies.

10. Legal services which meet the letter of the law and protect the interests of council, yet do not stifle council action.

11. Relations with adjoining municipalities and other government agencies, which gain for the council maximum advantage and harmony in inter-governmental relations.

12. A planning program which recognizes the limits of practical zoning, yet which aims at balancing the city's needs with its land uses.

13. A revenue platform which provides sufficient funds for budgeted services, yet which is reasonable in its demands on groups taxed, and recognizes their limitations in sharing costs.

14. Coordination, procedures, and facilities within city hall aimed at maximum efficiency, yet fully accepted by those involved.

15. Ordinances which govern each situation as completely and wisely as possible, which are defensible in court, which provide equal treatment, are not repetitive within themselves, which are properly codified, and are readily understandable to the public.

16. An uncomplicated accounting system which renders reports of revenue and disbursement at any time, which controls all transactions, which pays debts promptly, and passes annual audits smoothly.

17. A personnel program which is sensitive to council wishes, yet provides for effective workers with good morale and which relieves council of involvement in supervisory problems.

18. Police, fire and civil defense services which are geared to local conditions and to the human side of life, yet provide maximum protection and services to residents.

19. Highway services designed for maximum road maintenance, cleaning, and snow removal, with citizen complaints handled promptly, efficiently and courteously.

20. Engineering services which

guarantee high-quality construction and municipal improvements, yet which do not stifle private enterprise.

21. Plumbing, building and electrical inspections which observe all code standards, yet which are realistic in recognizing citizen and contractor problems.

22. City sanitation which provides protection to the residents against disease and nuisance, keynoted by the most satisfactory sanitary and storm sewer systems possible.

23. A treasury function which follows sound financial management practices and tax collection and assessment functions which are fair and impartial, yet effective.

24. Records which are systematic and permanent, yet simple enough to produce wanted documents without confusion or undue delay.

25. A capital-improvements program which recognizes the city's limitations in financing, yet which exploits all possible means of providing needed facilities.

26. Park, recreation, library and public welfare facilities and programs which offer services to the public not otherwise available, and which are appropriate to the residents' habits and needs.

27. If the city owns or operates sewage, water, gas, or electrical facilities, or collects its own garbage

or trash, effective public utility services equalling the best private business practices.

28. A budget which makes for easy council consideration in executive session; which can be heard publicly by the council without doubt as to its correctness and with full participation by the council in citizen questions; which is correlated precisely to the accounting system; which contains a minimum margin of estimate error; and which comprehends all sensible departmental needs, yet is not "inflated." ◄◄

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Announces University City-Planning Course

The Georgia Institute of Technology will offer as an addition to its existing masters' degree programs in city planning and civil engineering, a combined two-year program leading to two degrees: Master of City Planning and either Master of Science in Civil Engineering or Master of Science (undesignated), depending upon the background of the student. The new planning program will be offered for the first time in the fall quarter of 1961.

The purpose of the program is to meet the need of planning agencies and highway departments for men who combine competence in city and regional planning and transportation engineering.

Candidates for this new program will be limited to students who hold a bachelor's degree in engineering, mathematics, or physical science with considerable mathematics.

The program consists of 88 credit hours on the quarter system, of which 58 are in city planning, 14 in transportation engineering, and 16 in mathematical and experimental statistics, principles of digital computers, linear programming, and operations research. A thesis is required. It will be administered jointly by the Graduate City Planning Program and the Department of Civil Engineering.

Additional information about this new program may be obtained from either Howard K. Menhinick, Regents' Professor of City Planning, or Dr. Donald O. Covault, Associate Professor of Civil Engineering, Georgia Institute of Technology, 225 North Ave., N. W., Atlanta 13, Ga. ◄◄

Colman Establishes City Electric System

An additional 6½% rate increase by the local power company was the spark that ignited a drive for a municipal electric system in Colman, S. D. This is one of the few new municipal systems to be established in recent years.

A local citizens' committee campaigned for the change urging that the municipal electric system would:

- **provide local control of the electric system.**
- **offer the possibilities of a rate reduction.**
- **provide some tax relief.**

Mayor Duane Westling, who is the office manager of the Sioux Valley Empire Electric Association, a rural electric cooperative system, and Virgil Moul, a bank employee, spearheaded the move. They asserted that the power company purchased about 40% of its energy from Federal Missouri River dams at low cost and did not need the rate increase. An engineering study by Buell & Winter, consulting engineers, Sioux City, Iowa, showed that municipal ownership would be feasible and that the city could purchase power at wholesale rates from a nearby rural electric cooperative.

The vote favoring the move was 229 to 53. ◄◄

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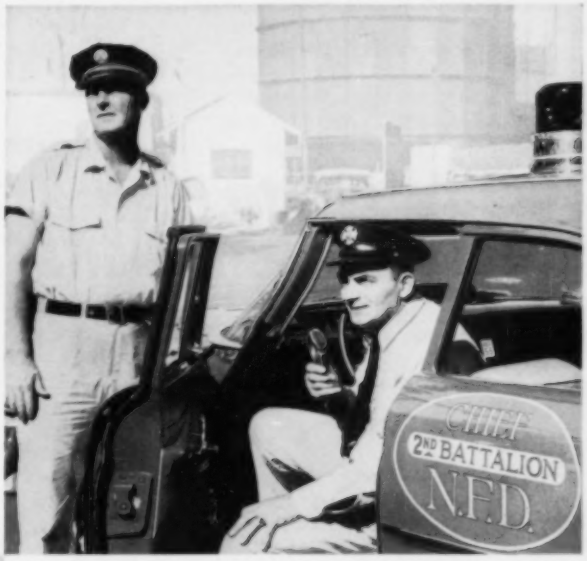

The Newark network is the largest major city transistorized system—275 RCA "LD" (Low Drain) 2-Way Radio Units. And the installation is important—it could well spark the opening of a new era of radio communications for municipalities. It insures not only the best operating system, but also the most economical in terms of initial cost and operating savings.

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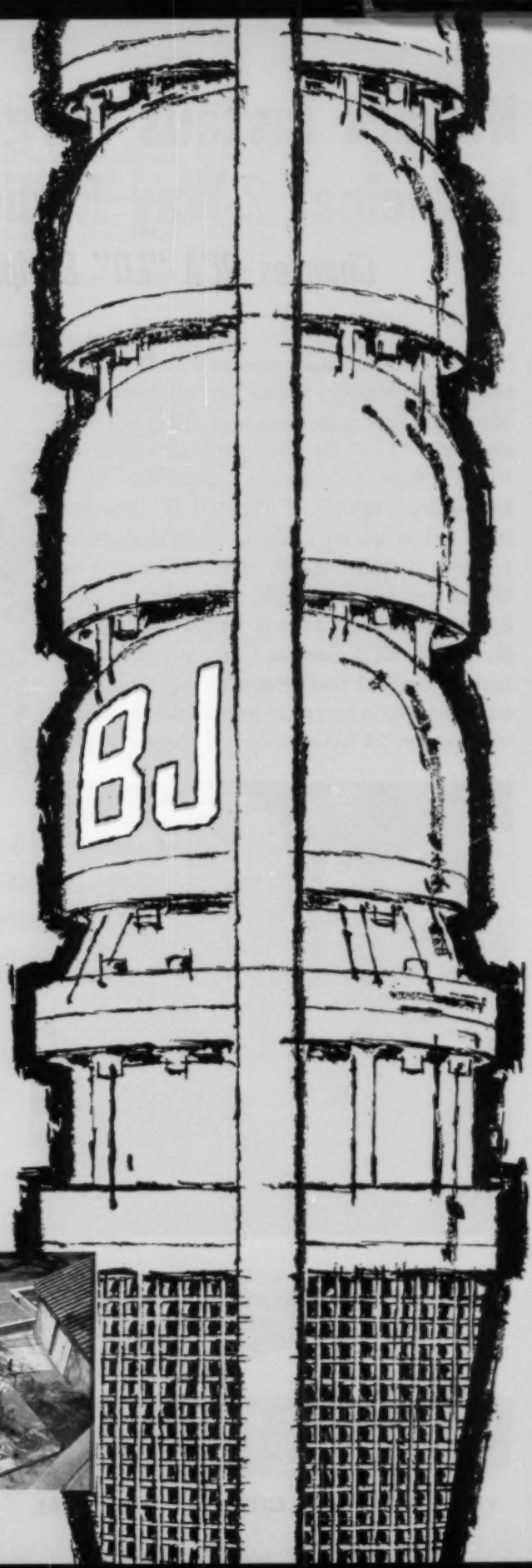

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The Commuter Problem — — A Solution for the New York City Area

By COL. S. H. BINGHAM*

Commuter service in the metropolitan area of New York has been the subject of studies over a great many years. Forty years ago the railroads were finding commuter service a profitable addition to their freight and long-line passenger business.

Rapid-transit plans of great magnitude for all areas surrounding the City of New York were proposed. However, in later years increased costs of labor and materials lead to increased fares, which in turn brought about a drop in the number of the revenue passengers.

The phenomenal increase in the use of buses and automobiles shortly before and after World War II supplanted the railroads in the transportation of commuters to the central business district in New York City. Many billions of dollars were spent for roads, highways, expressways, bridges and tunnels, but as fast as they were completed they became inadequate to cope with the rapidly expanding traffic.

As the number of passengers declined, the railroads reduced their commuter services continuously. Increased commutation fares could not keep pace with the increase in the cost of operation and each fare increase brought a further reduction in commuter railroad traffic. This vicious circle continued until today when every railroad is pleading for rate increases and permission either to cut service to the leanest areas or to abandon rights-of-way.

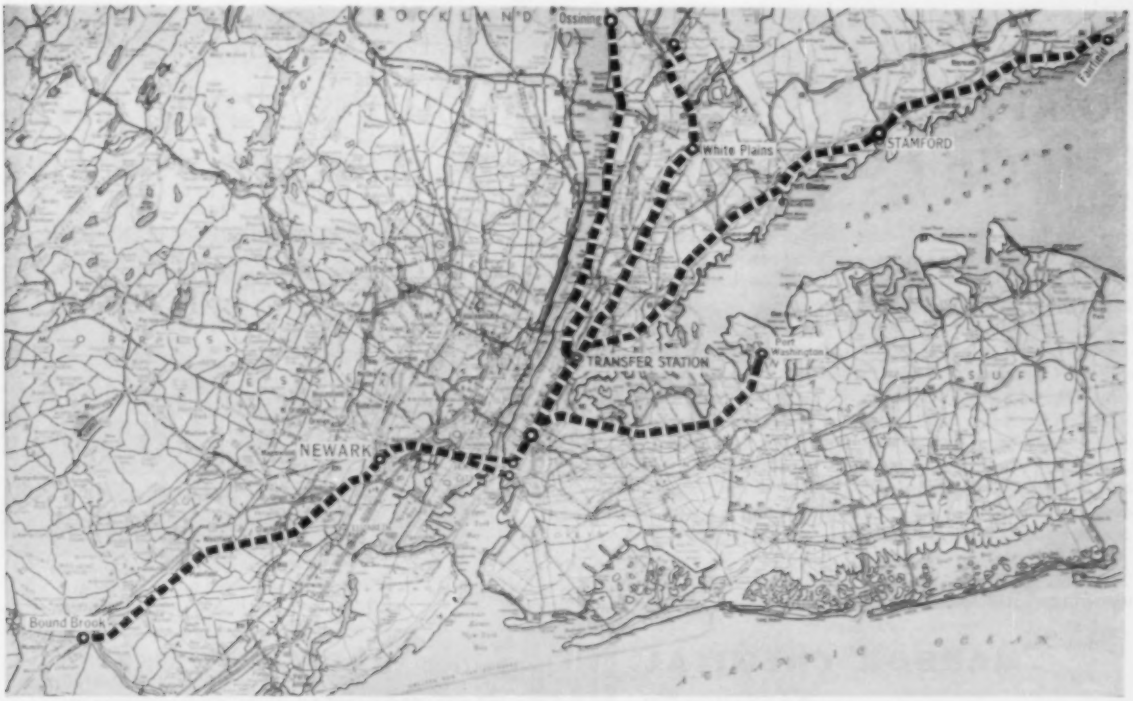
The compounding use of buses and automobiles originated in the expansion of the commuter areas beyond walking distance to the stations and, within the city itself, in the overcrowded conditions of the rapid-transit lines during the rush-hour period; for the commuter could conveniently enter his car at his doorstep and drive directly to his destination. While the park-and-ride plan has gained in popularity, the parking areas are generally located in the outskirts of the city and the idea of standing uncomfortably in a crowded train for a considerable length of time has deterred many from accepting the idea.

It is reasonable to assume that if a high-speed, air-conditioned, comfortable ride could be made available to the commuter, which would take him to his destination within the city with a distinct saving in elapsed time, he could then be weaned away from his automobile.

Such a service has not been available. A high-speed tri-state commuter system which could provide such a fully integrated service could be established at a cost which

(Continued on page 151)

* On February 1, 1956, Colonel S. H. Bingham, formerly Chairman of the Board of Transportation of the City of New York, retired as Executive Director and General Manager of the New York City Transit Authority, which operates the rapid-transit and surface-transportation facilities owned by the City of New York, to enter private consulting engineering practice.



Proposed tri-state high speed commuter system.

Two-man crew quickly lifts and places in position a section of six-inch plastic pipe from Plastex Plastics Co.

Less than two minutes is required for a single workman to prepare and make a permanent leakproof joint using only solvent cement.

COLORADO RANCHERS PAVE WAY FOR BETTER PRIVATE WATER SYSTEMS WITH

RIGID PIPE

made of ABS Plastic

HIGH PLAINS SYSTEM DEFIES ALKALIZED SOILS, GIVES NEW PROOF OF SUPERIORITY OVER CONVENTIONAL PIPE

When shallow wells ran dry, forty-five ranchers in the Brighton, Colorado area pooled their resources to sink a 1,200-foot fresh water well. Established as the High Plains Water Users Association, Inc., the group was formed to bring the much needed water direct to individual homes. The only pipe that could withstand the corrosive effects of the "hot" Colorado soil proved to be ABS rigid pipe made of CYCOLAC brand polymers. Likewise, the line was installed faster, easier and at less cost than either metal or concrete pipe. In all, 83,900 feet of rigid pipe was used in diameters of one to six inches. So successful was this particular system that thirty-six similar projects are now underway in Colorado alone. Proof again of the superiority of rigid pipe made of ABS plastic.

BE *ABSolutely* SURE . . .
INSIST ON RIGID *ABS* PIPE
made of
CYCOLAC®
BRAND POLYMERS
THE BORG-WARNER PLASTIC THAT IS TOUGH, HARD AND CORROSION-RESISTANT

Write Dept. A-5 for the name of your nearest supplier

MARBON CHEMICAL WASHINGTON

MARBON B-W CHEMICAL

DIVISION **BORG-WARNER** WEST VIRGINIA

CYCOLAC *is the registered trademark of Borg-Warner*

(Continued from page 149)

would not be prohibitive by using the existing trackage of the several railroads involved to provide a high-speed rapid transit line directly into Manhattan.

The first stage in this proposal would be the construction of a rapid transit line from the Bound Brook Junction of the Central Railroad of New Jersey and the Lehigh Valley Railroad, continuing along the tracks of the Central Railroad of New Jersey to Cranford, the Lehigh Valley to Newark, where a connection would be made with the Hudson & Manhattan Railroad, thence to Jersey City where the route would divide, with one branch going to its terminal in lower Manhattan, and the other continuing to its terminal at Avenue of the Americas and 32nd Street.

Of course there is much more to the plan but perhaps it is sufficient for other cities and metropolitan areas to state that the idea is to make practical commuter use to the utmost of all the available trackage in the area. The objective is a high-speed commuter service to bring the commuter within easy walking distance of his destination.

Here in New York, the entire rapid-transit system would be controlled from a central control point by means of centralized traffic-control equipment. With the use of the train-identification equipment carried on the car and the associated wayside equipment, the exact location and destination of each train would be recorded on a facsimile of the rapid-transit system. The information on the panel would be used by the dispatcher to regulate the train traffic.

The car design for this system would embody the principles and concepts of aerodynamics, and light-weight materials and the installation of air-conditioning equipment would be specified. A car body suspension system, completely new in car design, would be used to assure comfort. ◄◄

Safety Award

Baltimore, Md., recently honored 193 chauffeurs of the Bureau of Sanitation for safe-driving records for periods of from one to twelve years.

Selection of winners is based upon records maintained by the Bureau's School of Safety and Instruction.

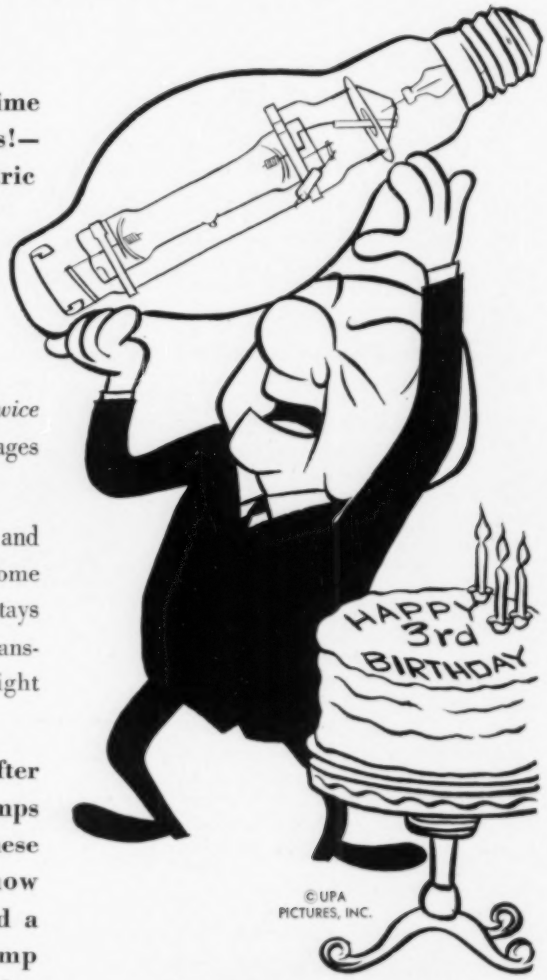
The Man from Hobbs says:
YOU'LL HAUL 3 YARDS MORE REFUSE IN A HOBBS HYD-PAK!*
HOBBS HYD-PAK
A DIVISION OF HOBBS TRAILERS
O-G-5
*. . . than in other refuse packers of comparable weight and cost!

The BIG DIFFERENCE is in the capacity ratings. With a "16-yard" Hyd-Pak, you get 16 yards in the main storage compartment, where refuse can be completely compressed. The three-yard loading hopper is not even counted (though it can be filled and used to transport refuse at the end of a run). Before you buy refuse collection bodies, you should see this true capacity in action. We'll be happy to arrange a demonstration. Just write or wire:

HOBBS HYD-PAK • 609 North Main • Fort Worth • Cable HOBBSCO

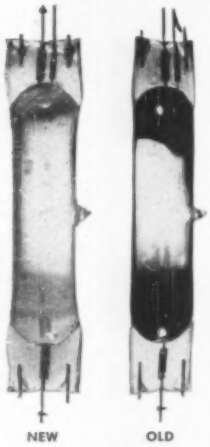
First from General Electric (1958)... another bright idea that became a better street lamp for you... Bonus Line Mercury

works 6,000 hrs. overtime and cuts your costs



Nearsighted Mister Magoo says . . . "1958? How time flies! That's the year the Nautilus—gallant lads!—went under the North Pole, and General Electric developed the Bonus Line Mercury lamp. Happy birthday, Bonus Line. Egad, who built the ship in this bottle?"

Look again, Mister Magoo. It's General Electric's special new electrode. Up through the 400-watt size, it gives you 12,000 hours of effective street lighting—*twice as much as the old non-bonus line.* And the higher wattages (700 and 1000) give you 50% extra useful life.



Compare these two arc tubes, and you'll see where the extra hours come from. Notice how the new one stays white instead of blackening. The translucent *white* deposit lets more light come through.

Result: you get more light after 12,000 hours than ordinary lamps produce after 6,000 hours. These extra hours are free. And now manufacturing efficiencies and a growing demand for this lamp enable us to reduce its price 15%. Other popular G-E 400-watt mercury lamps are reduced 8-13%.

Important: All G-E mercury lamps are now made only in *heat resistant glass,* to prevent glass deterioration. Ask your G-E distributor for more details. General Electric Company, Large Lamp Dept. C-19, Nela Park, Cleveland 12, Ohio.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Alton Cuts Costs on Insurance Program

A new program for the purchase of city insurance, developed between the City of Alton, Ill., and the Alton Association of Insurance Agents, Inc., is saving the city more than $5,000 annually on automobile and property coverage.

In 1958 the city insured 56 pieces of automotive equipment under six separate policies at an annual cost of $5,936. Today, the city insures 76 equipment items under a single policy which costs $3,733—an annual saving of $2,203.

Three years ago, the city purchased fire and extended coverage insurance on its buildings in 25 separate policies providing a total insurable value of $814,680. In 1961, the amount of insurance coverage has been increased to $1,300,000 and the total annual premium has been reduced from $6,414 to $3,208, a yearly saving of $3,206. The fire and extended coverage risk is now divided equally among ten insurance companies; all claims are processed by a one adjustment company using a blanket-claim form.

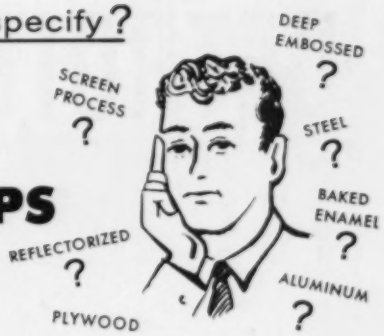
Prior to October 1960, the only comprehensive liability insurance carried by the city was on its two golf courses and the public library. Under the comprehensive liability policy now in effect, all exposures except streets, sidewalks and bridges are covered. Limits of liability have been increased to $100,000 for each person, $300,000 for each accident, with $25,000 property damage coverage. The average annual premium for this insurance coverage is $4,559.

Under the cooperative program between the city and the Insurance Agents Association, one agency is designated by the city as its insurance advisor and the costs of its work are paid by the Association. After determining the exposures to be insured, the type of insurance and other pertinent requirements, specifications for a policy are prepared by the insurance advisor, reviewed by the city, and submitted to the member agents for preparation of sealed bids. Bids are reviewed jointly by the city and the insurance advisor and the award is made by the city manager.

Presently being prepared are specifications for officials' and employees' bonds and for burglary and robbery insurance coverage. Review of miscellaneous marine coverages will be the final phase of the undertaking which was started about three years ago. ◄◄

What signs shall I specify?

LYLE'S SIGN SERVICE HELPS YOU DECIDE

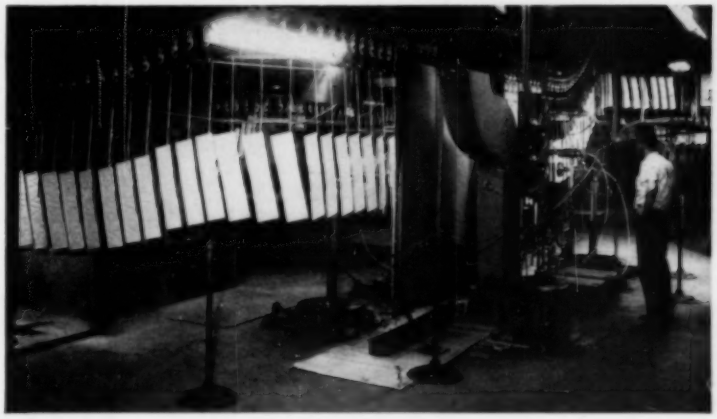


New sign materials and processes and modern methods of handling the old, provide important new ways to solve your signing problems. And Lyle, as a manufacturer of quality street marker and traffic control signs, has available *all types* of sign materials and styles to meet your various requirements. That's why the experience of LYLE's sign representatives in helping to solve signing problems for dozens of cities and towns can be so valuable to you now.

And, whatever materials you select, Lyle's know-how assures you of highest quality. For example, tested and time proven, the steel blanks are a hot dipped, continuous process galvanized material, bonderized after fabrication. This special steel Lyle uses costs so little more than non-rust proofed material—yet lasts many times longer. Available too, are various types and gauges of aluminum sheeting and extrusions, and high density plywood.

Consider also finishes. Choose from baked enamel or reflective materials. Available are the latest and most improved types of reflector buttons, reflective sheeting, reflective spheres applied directly by Lyle to binder material overlaid on baked enamel, and reflective liquid coating.

Processes available include Lyle's famous deep embossing for highest legibility due to 3rd dimension, flat lettering and screen processing.



When baked enamel finish is indicated, LYLE provides the highest quality you can buy, and at competitive prices. The photo above shows a section of Lyle conveyor type baking ovens. Specially formulated paints are applied with controlled pressure. Then, carefully timed at controlled temperature, the finish is baked for a sparkling lustre, free from blemishes, blisters or cracks of any kind. Presto! An attractive, durable sign.

Write for Lyle's free Sign Manual B-55 and the name of your nearest Lyle Sign Representative, if you don't already know him.

Lyle SIGNS, INC.
2722 University Avenue S. E.
Minneapolis 14, Minnesota

DETROIT to install TWO MORE F&E INCINERATOR STOKERS

Firing Aisle—Northwest Incinerator Plant, Detroit, showing the two furnaces each rated at 425 tons.

TOTAL CAPACITY WILL BE INCREASED TO 3,000 TONS OF MIXED REFUSE DAILY

Seven F&E Multi-Cell Incinerator Stokers, with a total rated capacity of 2,325 tons of mixed refuse daily, are already in use in the various plants in the City of Detroit. Operating experience shows that all units easily exceed their nominal rating in normal operation, resulting in substantial savings to that city.

When additional incinerator capacity was required, F&E Multi-Cell Incinerator Stokers were again selected.

According to Mr. Theodore E. Winkler, Engineer of Waste Disposal, the City of Detroit will have a total rated capacity of 3,000 tons when the two F&E Incinerator Stokers now on order are installed.

Specify F&E Multi-Cell Incinerator Stokers

Complete Flexibility of Operation
Utmost in Economy—Reduced Labor
Rugged Construction—Lifetime Dependability
Progressive Burning for Maximum Results

CONTACT F&E TODAY
for engineering details and data.

FLYNN & EMRICH

BALTIMORE 2, MARYLAND

S-T-R-E-T-C-H
your equipment-dollars with utility-size machines

. . . speed-up your services

How often do you keep a $12,000 to $20,000 tractor-loader at a job-site all day, to accomplish only 1½ hours of intermittent work? Wouldn't it be better to use a less-costly utility-size tractor that takes an extra hour for the work . . . and then *have more machinery* to take care of two or three projects at once?

Some jobs, of course, *require* big machines, especially for heavy continuous digging. But for a variety of work — including large-scale grass mowing — one large tractor *plus* a fleet of 2 or 3 low-cost, mobile, Case *Utility* Loader units can handle *three times as many jobs* as two big machines . . . and with the *same equipment budget*. In addition, the Case rigs can move quickly around town in normal traffic, and can work in close quarters and softer footing — where bigger, heavier rigs can't go.

For season-long mowing

During the summer, grass and weeds can be kept smoothly cut as short as 1" with this 3-blade center-mounted rotary mower mounted on Case *Utility* Loaders. Mower cuts ahead and beyond rear wheels, lifts up out of the way for normal loader work between mowing jobs. Side-mount cutter-bar mowers also available.

Rubber-tired Case *Utility* Loaders are offered in two sizes to fit your work at lowest cost. Both are available with Case-built *high-torque gasoline or diesel engine*. Model 530 Loader gives you power and traction for light digging, 2000-lb lift capacity, quick-reversing shuttle transmission and power steering for fast dig-dump cycles . . . 14′ backhoe optional. Model 430 provides up to 1200-lb lift capacity, makes an excellent handyman for bulk materials handling, clean-up after street-work, and odd-lot material handling . . . 10′ backhoe available. Optional loader equipment (dozer blade, rubbish fork, log fork, pallet fork) give you multiple-task versatility. Large-area lawn can be mowed between loader jobs with center-mounted Case-Danco 6′ rotary mower. And rear-mount attachments let you do dozens more maintenance jobs.

See how Case *Utility* Loaders can handle a larger portion of your everyday work faster, at less cost. Call your Case Dealer — today — for free demonstration. Or send coupon for free specification information.

J. I. CASE COMPANY, Dept E1561 RACINE, WISCONSIN

CASE. *Utility*

Send specifications on *Utility* machines and attachments:

☐ 2000-lb Model 530 Loader ☐ 1200-lb Model 430 Loader

☐ Other .....

Name .....

Position .....

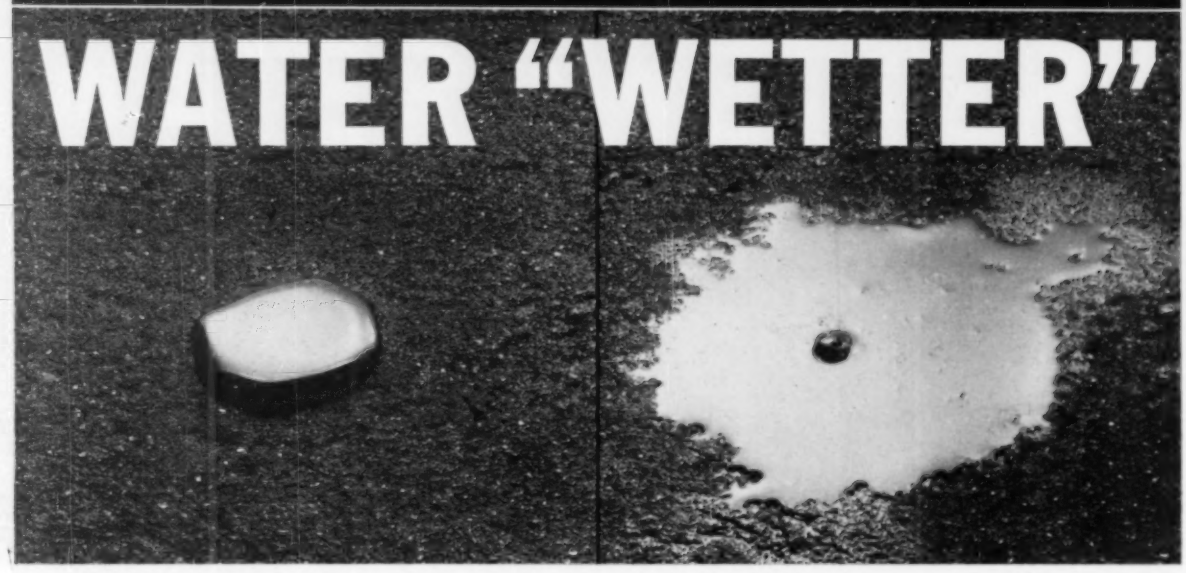
Employed by .....

Address .....

City ..... State .....

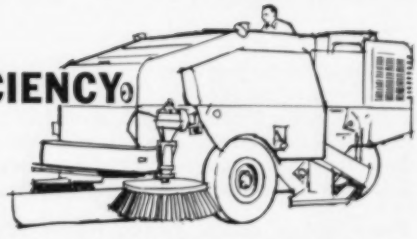
CU-L-290

Zep FORMULA 9458 makes WATER "WETTER"



for

IMPROVED STREET CLEANING EFFICIENCY
PROLONGED BROOM LIFE
WATER SAVING



For a more effective job of street cleaning, add Zep Formula 9458 to water used in sweeping machines. A specially formulated system of wetting agents in this liquid concentrate greatly lowers the surface tension of water, allowing it to penetrate dust and dirt better . . . actually making water "wetter." As a result, Zep Formula 9458 is an excellent dust-laying aid, making collection by sweeping machines easier and more efficient.

Cut cost of washing down city streets by adding Zep Formula 9458. Its detergent action loosens street dust and dirt, and actually reduces the amount of water needed to keep streets clean. Consider the savings your city can make using this inexpensive, easy-to-use liquid concentrate.

USE ZEP FORMULA 9458 AS PRE-SOAK FOR SWEEPER BROOMS

and prolong the service of these expensive brushes. Treatment with Zep Formula 9458 makes brush bristles more pliable, longer lasting. You save up to 50% (often more) in replacement costs.

See for yourself . . .

Conduct your own test of how Zep Formula 9458 actually "makes water wetter." A free sample will be sent to you upon request.

Full information about Zep Formula 9458 or about any of Zep's many maintenance and sanitation products for municipal use is available from our office nearest you. Call or wire collect.

ZEP

MANUFACTURING CORPORATION

FIRST in Maintenance and Sanitation

ATLANTA
1310 SEABOARD INDUSTRIAL BLVD. N.E.

BIRMINGHAM
3605 THIRD AVENUE SOUTH

CLEVELAND
13112 BROADWAY

DALLAS
1103 SLOCUM STREET

KANSAS CITY
111 EAST 10TH AVENUE

NEWARK
231 JOHNSON AVENUE

Two flushers work together on one of Oklahoma City's downtown streets; street cleaning in this area is chiefly a nocturnal operation.

Street Cleaning Is More Than Sweeping

Oklahoma City, Okla., uses a combination of sweeping, flushing, blading and hand shoveling to keep its streets clean

By W. W. BAKER
and NEAL A. McCALEB*

Mechanical street sweeping in Oklahoma City is relatively new. Until recently, for reasons of economy, the city employed street flushers and hand-panning methods only to clean the streets. We did purchase one mechanical sweeper just before World War II. Unfortunately, however, its design was not a particularly economical one from the standpoint of operation and the city soon discontinued using the machine. It was not until four years ago that the city started the first successful sweeper operation after buying a three-yard Wayne sweeper. Since then we have bought four two-yard Wayne's and all five units are now in successful operation.

The present city limits encompass approximately 450 square miles which include some 2,800 miles of streets. About 1,700 miles of these streets have some type of hard-surface material. Our program of keeping the streets clean can readily be divided into the following five categories:

- **The Downtown Area**
- **Major Feeder Streets**
- **Residential Streets**
- **Rural Streets**
- **Catch Basin and Special Cleaning Operations**

To clean these different areas we divide the operation into four phases; street flushers (pressure type); mechanical sweepers, panning trucks and graders. Panning trucks are ordinary dump trucks with shallow beds. The crew consists of a driver and two laborers equipped with long-handled shovels.

The downtown section, covering an area of some 20 blocks square, is probably the most critical from a health standpoint. We clean it daily, almost entirely at night. The

(Continued on page 159)

Mechanical sweepers clean the major feeder streets regularly as the dirt and the debris accumulate with a minimum schedule of once a week.

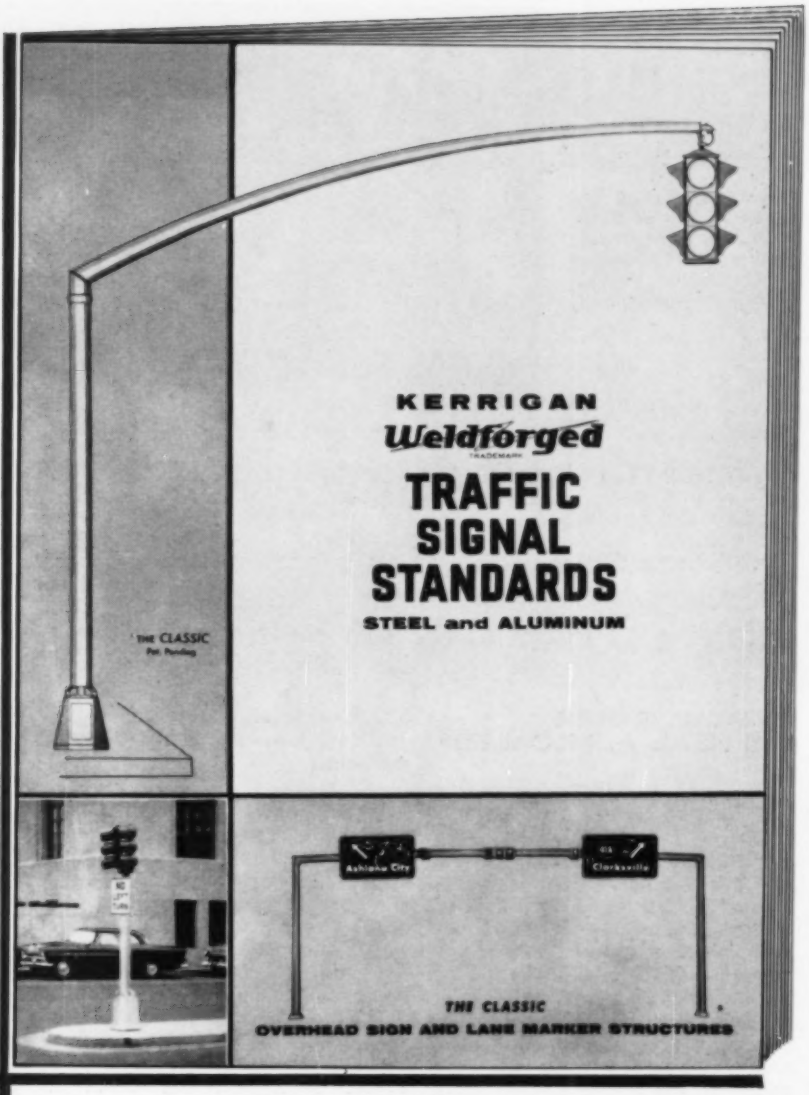
Street flushing is still the mainstay of the residential street cleaning program; the city operates ten of these units.

*Mr. Baker is the city engineer of Oklahoma City and Mr. McCaleb serves as assistant city engineer.

NEW CATALOG

modern streamlined

TRAFFIC SIGNAL STRUCTURES



Kerrigan's new CLASSIC design combines strength and installation ease with beauty and grace to enhance the most modern street or highway project . . . with matching structures for lighting, traffic signals and signs.

Get YOUR copy of the new catalog pictured here! Choose from the *latest* in traffic signal and sign supports!

ADDRESS:
DEP'T. A-5

KERRIGAN IRON WORKS COMPANY
NASHVILLE, TENNESSEE
SUBSIDIARY OF
ROCKWELL-STANDARD
CORPORATION

STREET AND AREA LIGHTING STANDARDS IN STEEL AND ALUMINUM

(Continued from page 157)

crews use one or two sweepers, three or four flushers and ten trucks. Manpower consists of a foreman, his assistant and about 25 men. This crew also provides effective aid in emergencies such as snow removal, tornado rescue and relief from floods which occur during certain seasons when Oklahoma is subjected to torrential rains and winds of high intensity. The budgeted cost of cleaning this downtown area averages around $53,000 per year.

To clean the major streets we use a combination of several operations. Where we permit curb parking, the flushers force the dirt and debris into the catch basins which are either of the flat grate or straight, open-curb type. In street-construction work we use the latter whenever possible since this helps minimize catch-basin cleaning.

Dry Weather

During extended periods of dry weather the debris and dirt collects and cakes. At such times the panning trucks follow the flushers so that laborers with shovels can remove the caked dirt and deposit it in the truck. On divided streets the mechanical sweepers usually do a good job of cleaning along the inside curb but here again it becomes necessary to use the panning trucks and crew when the soil cakes and adheres to the slab.

The hand shovel is most effective in removing hard-caked dirt; thus the panning trucks and manual labor play an important part in Oklahoma City's street-cleaning program.

Flushers and panning trucks do most of the street cleaning in our residential areas; we employ the sweepers periodically when parking can be eliminated. Graders with hand labor (forks and shovels) remove the objectionable material from the unpaved rural streets. This material is loaded into trucks and hauled to a designated dump area.

Special crews clean the catch basins. Many times during periods of drought the material becomes hard and caked, requiring the men to remove the grate and scrape and remove the deposit in the bottom of the receptacles.

Our total budget for all types of street cleaning amounts to approximately $288,680. Of this, about $207,504 covers salaries and wages for the 62 people involved in the work. Equipment operating costs are approximately as follows:

10 Boardman flushers on Chevrolet and International two- to four-ton chassis—$8,441.

5 Wayne sweepers—$13,023.

24 trucks—$20,000.

13 Caterpillar, Allis-Chalmers and Austin-Western graders—$40,000.

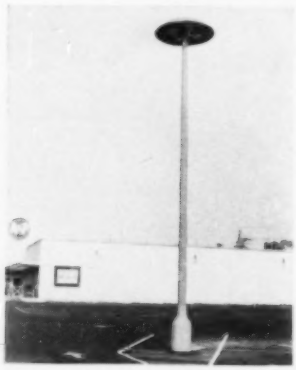
Local conditions require special

(Continued on page 161)

products for
the public good
SINCE 1898
"THANKS FOR THE VOTING MACHINE
. . . We can all be thankful that voting machines were used in Knox County Tuesday . . . with the torrent of votes election boards would have faced a terrible task if the old paper ballots had been used . . . the counting would have dragged on through the night and until the early hours of Wednesday . . . A voter also has the assurance that his vote will be counted correctly when he votes by machine."
VINCENNES, INDIANA, "Sun-Commercial"—Nov. 8, 1960
AUTOMATIC
VOTING MACHINE
division of Rockwell Manufacturing Co.
Jamestown, N. Y.

HY-LITE

Stress-Spun concrete standards....



- finest appearance • lowest maintenance
- longest life...for every lighting need

• Catalog No. 400 offers complete information. Write for your copy today. Address the American Concrete Corporation, 5092 North Kimberly Avenue, Chicago 30, Illinois.

American Concrete

STRESS-SPUN CONCRETE LIGHTING STANDARDS

(Continued from page 159)

attention and the street cleaning operation on the whole is an expensive one. We are confident, however, that improved equipment and techniques will in the future provide a less expensive, more effective and healthful type of street cleaning program.

Under our present program, we schedule the cleaning frequency of streets outside the downtown area by the accumulation of dirt, trash and other objectionable material. Minimum cleaning frequency is once every two months for residential streets and once per week for major thoroughfares. ◄◄

Eye Keeps Tab On Transit Riders

Regular passengers on the ultra-modern rapid-transit system projected for the San Francisco Bay Area will be able to show credit cards to an automatic scanning eye and receive bills at the end of the month for the actual miles they traveled. The device to cut down fare-paying delays was described recently by John M. Peirce, general manager of the Bay Area Rapid Transit District.

The transit system is being designed, he emphasized, to attract commuters by being fast, cheap, and as comfortable and as convenient as automobile transportation.

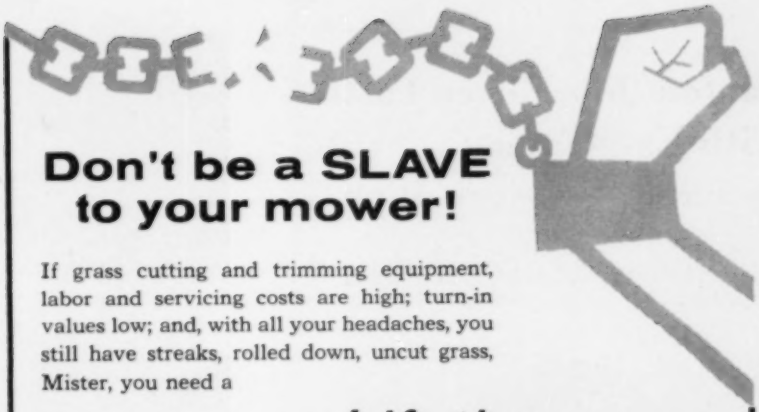
During the past five years the Bay Area's population has increased by 10% but peak-hour auto traffic into the central cities from the suburbs increased by nearly 50%. "Although the cost of rapid transit will be great," Pierce said, "the cost of growing congestion is much greater."

Consequently, he said, he considers it certain that adequate financing will be developed and that the Bay Area will build a rapid-transit system during the 1960's. ◄◄

Public Housing Spurs Community Growth

New public housing developments often spur economic growth in a community, according to Francis V. Madigan, vice-chairman of the New York City Housing Authority.

The Marlboro Houses in Brooklyn resulted in almost a $100-million boost in real-estate values in the community within a year. It attracted three supermarkets, a bank, and a boom in private building in the area. ◄◄



Don't be a SLAVE to your mower!

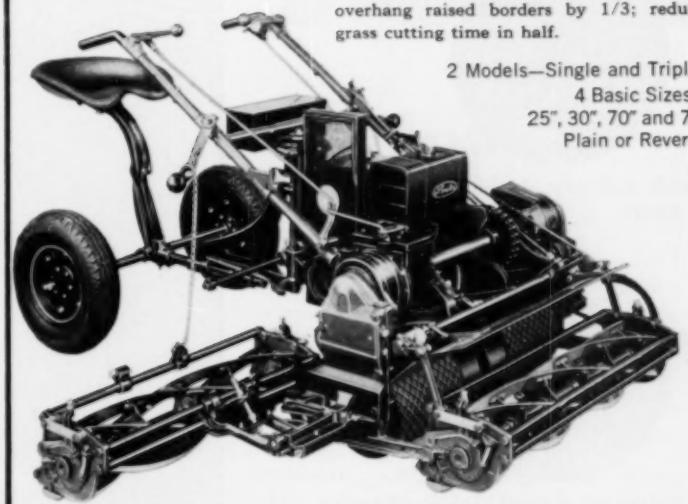
If grass cutting and trimming equipment, labor and servicing costs are high; turn-in values low; and, with all your headaches, you still have streaks, rolled down, uncut grass, Mister, you need a

Lifetime

Locke POWER MOWER and trimmer

Lockes with their exclusive "floating" action, "finger-tip" controls, perfectly balanced, fully synchronized chain driven exclusively designed reel-blade-cutters, overhang raised borders by 1/3; reduce grass cutting time in half.

2 Models—Single and Triplex
4 Basic Sizes—
25", 30", 70" and 75"
Plain or Reverse



A Locke demonstration will prove their versatility, practicability and economic value. Arrange for it today! Call your Locke Service Dealer. Buy a "Lifetime" Locke.

Locke POWER LAWN MOWERS
1315 Connecticut Ave., Bridgeport 1, Conn.
A product of The Locke Steel Chain Co.

Send for these New Locke data sheets

Now is the time to take your grass cutting costs seriously. ASK YOUR LOCKE Service Dealer for the facts, or write.

Locke Mower Div.
The Locke Steel Chain Co.
1315 Connecticut Ave., Bridgeport 1, Conn.

Gentlemen:

☐ We want a demonstration. Have your Dealer phone.
☐ Send your latest literature.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE ____ STATE ____

Canton Job Moves Fast With Easy-To-Lay Concrete Pressure Pipe

In large photo at right, backhoe has dug trench and is lowering pipe into position.

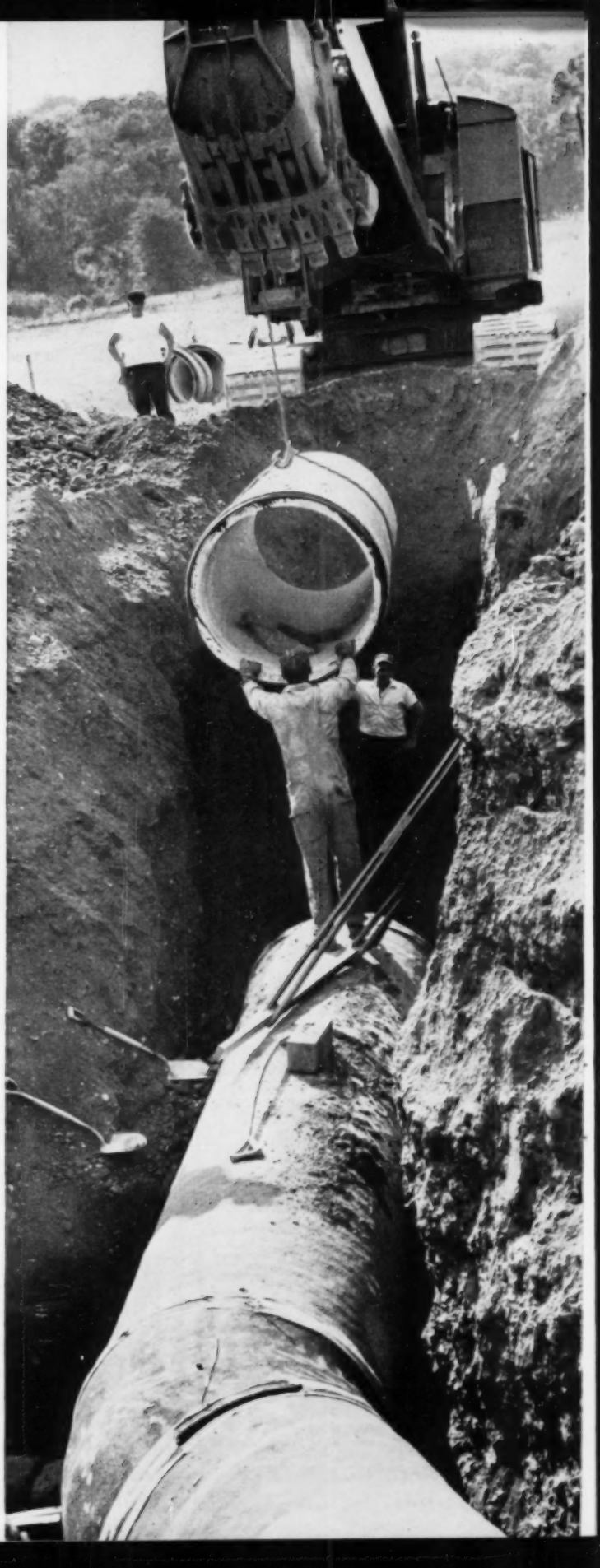
Here workman lubricates rubber gasket for easy-to-make, bottle-tight joint.

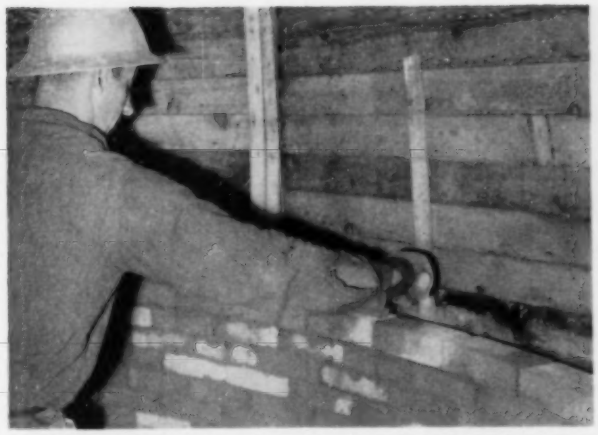
Joint is made and crew checks position with alignment square.

Workman pours grout to finish up joint as crew moves ahead with additional sections.

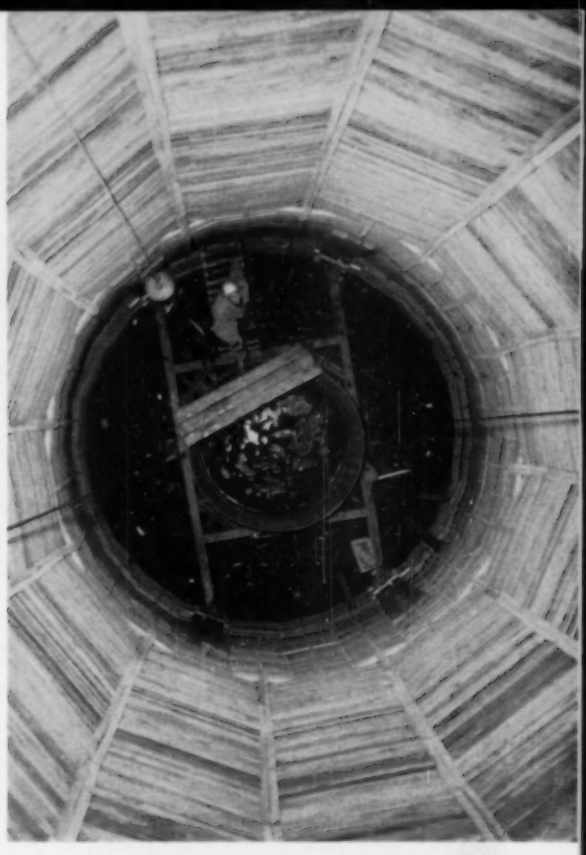
This 17-mile line runs from the new Sugar Creek treatment plant southwest of Canton. The pre-stressed concrete steel cylinder pipe is mostly 42-inch, with some 36-inch. It is the kind of pipe you "bury and forget," requiring little or no maintenance. The Superintendent of Water at Canton is Alfred E. Ransom. Beiswenger, Hoch & Associates were the consulting engineers. The pipe was manufactured by Price Brothers Company with headquarters plants in Hattiesburg, Mississippi and Dayton, Ohio.

Price Brothers
CONCRETE PRESSURE PIPE





The final work on the well shaft consists of lining it with four-inch cement brick, filling the space between the bricks and finally shoring it with grout.



With the shaft completed, workmen sink the seven-foot-diameter perforated casing into the water-bearing strata.

Old-Fashioned But Still Good

Spokane, Wash., digs wells by hand and saves

By GEORGE R. OSLUND
Utility Engineer

When it comes to drilling wells, Spokane, Wash., turns back the calendar some 50 years. All of the city's 14 water wells, ranging in depth from 50 to 275 feet, are dug wells—many of them hand dug.

Several important reasons favor digging over the rotary and cable tool operations in the Spokane area. First, the earth structure makes hand digging practical. It can be worked with pick and shovel with relative ease all the way to the water course. Second, a water-well drilling firm in the area, Oliver Zinkgraf & Sons, of Spokane, has kept alive digging techniques through three generations of father-and-son operations. In addition, dug wells are cheaper to construct and much easier to maintain and repair. They also provide much more water per well.

The city's most recent well serves as a good example. Specifications for this well included alternate methods. To obtain the amount of water needed by the rotary method, we would have had to drill two adjacent holes and set 24-inch casings to a depth of 260 feet. The dug well required a 12-sided shaft eight feet in diameter to a depth of 170 feet and then gradually belled outward to a maximum diameter of 18 feet at a depth of 214 feet below the surface. The dug well also required 58 feet of seven-foot-diameter perforated steel shaft sunk into the water course below the 214-foot level, and cleaned of sand and gravel. Pumping facilities consisted of two submersible pumps of 8,000-gpm combined capacity suspended by individual casings from the surface into the perforated casing. The shaft itself had to be shored with 2x6 lumber during excavation, then lined with four-inch cement brick when the well was complete.

The low bid for the rotary drilling method came to about $70,000 while the bid for the dug well amounted to approximately $55,000. Past experience shows this spread in bid price to be about normal, one reason being the large equipment investment required for drilling as compared to digging.

The shaft-type well such as the one just completed has several distinct advantages over the casing type from the city's point of view. First, development of the water structure itself is more satisfactory when two submersible pumps can be placed inside a single, large diameter perforated casing. If we consider the same volume of water pumped, the velocity of flow through any given portion of the aquifer surrounding the large-diameter casing is much slower than through the small-diameter screen used in most drilled wells. This means less sand and less chance of clogging the perforations.

Ease of access simplifies maintenance. A diver can clean the per-

(Continued on page 165)

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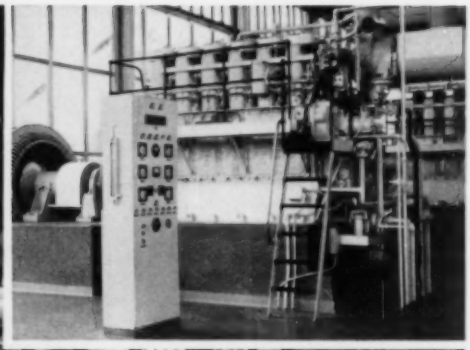

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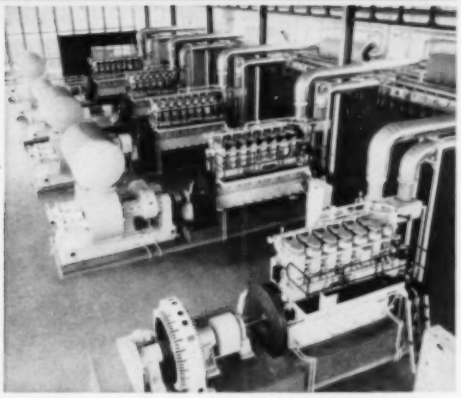

BOTTOM, Four Enterprise engines drive blowers for aeration process.

TOP, Fifth Enterprise engine drives a generator for stand-by power.

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(Continued from page 163)

forations should this become necessary. Should corrosion require replacement of the casing this can be done by inserting a new one slightly smaller in diameter. This same accessibility to the bottom of the hole allows pump and motor repairs to be made without pulling the entire pump discharge column.

It takes longer to dig a well than to drill one, but this simply requires earlier planning. Digging is much less objectionable than drilling within the city when considering the noise problem, particularly in a residential area. The finished well, with virtually all machinery submerged, is soundproof, and can be landscaped easily and effectively.

While we still use an old-fashioned method of digging wells, we have adapted it for the use of modern pumping equipment and controls. The new well contains two 450-hp Byron Jackson submersible pumping units rated at approximately 4,200 gpm each against a 325-foot head. Consequently, our new well will produce about 8,400 gpm or 13 mgd.

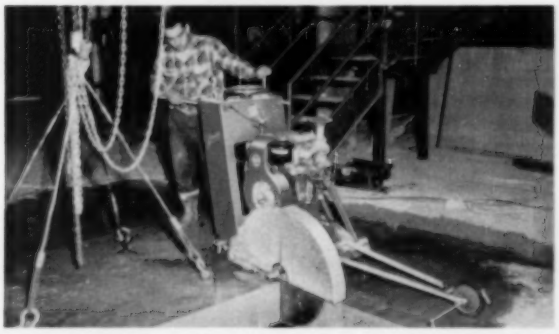
We designed the controls for these pumps to provide either automatic control by reservoir elevation, remote control from our central station, or by manual or time control at the station itself, depending upon seasonal demands.

The Water Department has already prepared plans for another well to be located at the same site. This will be excavated in the summer and fall of this year with two pumping units scheduled for installation in 1962. The pumping station was built to accommodate the additional controllers and chlorinators for the new well. ◄◄

Tax Mapping Will Bring 5% Tax-Income Boost

Urban areas can expect to boost their tax revenue by an average of 5% through a thorough job of tax mapping. This is the estimate of Gordon Ainsworth Associates, South Deerfield, Mass., consulting engineer.

This firm has conducted tax-mapping studies in some 25 communities. Of these only one had been able to account for every parcel of land. The balance averaged 5% with land ownership unknown. ◄◄



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PROJECT: Wind tunnel at government research base. **CONTRACTOR:** Nash Drilling Co., Ltd., Montreal, P.Q. **EQUIPMENT:** Truco 18 H.P. Economy Concrete Saw; Truco Tru-Bond Diamond Blade 26" dia. 3/16" thick. **JOB:** Cut an inspection opening 10'0" x 5'0" in 5000 lb. test concrete reinforced with 2 layers of reinforcing rods ½" dia., placed on 8" centers. Slab was marked off in two 5'x5' sections, and 3" holes drilled in the four corners of each section to receive fastenings for cables to support slabs. Four cuts released the first slab for removal. Three more cuts released the second slab. The 26" dia. Truco Diamond Saw made a 10½" cut and the remaining concrete on the wavy underside (about 1") easily broke away when the slab was lifted. Actual cutting time was only 3½ hours and the entire job was easily done in one day. Savings are so great Truco Diamond Drilling and Sawing Equipment may pay for itself on a single job or in a single day. Send for new Truco catalog.

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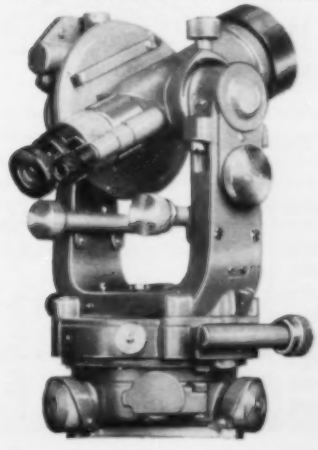

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CARRYABLE
PUMPS

Size	Capacity	Wt. in lbs.	Model
	CENTRIFUGAL PUMPS		
1½"	5,500 g.p.h.	45	20S1½
2"	10,000 g.p.h.	69	35S2-1
2"	10,000 g.p.h. (slow speed)	69	35S2-1R
3"	18,000 g.p.h. (slow speed)	103	8S3-1
3"	18,000 g.p.h.	103	8S3-1R
3"	102 g.p.m. at 60 p.s.i. 250 g.p.m. — open discharge	103	8S3-1P
	DIAPHRAGM PUMP		
3"	5,000 g.p.h.	120	20DP3

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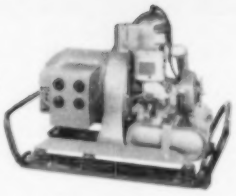

Capacity (Watts)	Current	Wt. in lbs.	Model
1,500	115 volt, 60 cycle, AC	90	35A115
3,000	115 volt, 60 cycle, AC	140	8A115
3,000	115/230 volt, 60 cycle, AC	141	8A115/230
3,000	230 volt, 180 cycle, 3-phase AC plus 110 volt DC	143	8HY

4 Cycle Engine Driven Pumps and Generators also available

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Type	Head Dia.	Motor	Wt. (Complete)	Model
Motor-in-head	2.3"	High-Cycle*	47 lbs.	VH-LD
Motor-in-head	2½"	High-Cycle*	41 lbs.	VH-10
Motor-in-head	4"	High-Cycle*	58 lbs.	VH-HD
Motor-in-head	2¼"	110 v. AC-DC	42	VU-MH
Flexible Shaft	1 1/16", 1¼", 1⅜"	110 v. AC-DC	41	MU-FS

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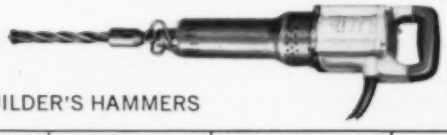
Model	Wt. in lbs. (Engine Only)	Type of Drive	Tree Sizes Model Will Cut (Dia.)	Straight Blade Bar Lengths
500	19	Direct	Up to 3'	12" to 21"
600D	18	Direct	Up to 4'	12" to 30"
ZIP	20	Direct	Up to 3'	12" to 21"
WIZ	20	Gear	Up to 5'	14" to 28"
700D	19	Direct	Up to 5'	12" to 30"
700G	21	Gear	Up to 7'	15" to 60"
900D	23	Direct	Up to 7'	17" to 44"
900G	26	Gear	Up to 10'	18" to 60"

ELECTRIC TOOLS



BUILDER'S HAMMERS

Weight	Capacity (Drill Sizes)	Motor	Model
13 lbs.	¼" to 1⅛"	115 volt AC-DC	BH-13-U
21 lbs.	½" to 2⅜"	115 volt AC-DC	BH-21-U
20 lbs.	½" to 2⅜"	High-Cycle*	BH-HC

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Drills holes up to 3" in diameter, up to 20' deep. High-cycle motor. Weight: 55 lbs.

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*180 cycle, 230 volt, 3-phase AC power for high-cycle tools is supplied by carryable Homelite generator, Model 8HY.

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Fort Lauderdale's Purchasing Builds Up

By R. K. LOWRY
City Purchasing Agent

A good purchasing law is basic and Fort Lauderdale's centralized municipal purchasing is established on a good purchasing ordinance. Our purchasing manual (described in THE AMERICAN CITY, August 1957, p. 173) sets forth in some detail the rules, regulations, and necessary procedures.

All procedures from issuing the requisition to receiving and inspection of the delivered goods are covered, including the sticky problems of small pick-up orders, emergency purchases, and blanket orders.

One year ago, we were successful in establishing a central-stores warehouse. This operation permitted bulk buying of many items that were previously purchased on a "hand-to-mouth" basis. The savings on warehouse items is averaging 25%. Based on anticipated savings, the city should show a direct savings of $15,000 to $18,000 a year, above all costs of operation.

The City of Fort Lauderdale in cooperation with 14 other governmental units in our area has established a cooperative purchasing program. It has no legal status, but exists solely on cooperation among the agents who want to make their procurement programs more effective. The combined savings of all participants has passed the $75,000 mark. The city of Fort Lauderdale's savings are $25,000. ◄◄

Who's the Successful Bidder?

"The City of Trenton, through advertised formal proposals, awards contracts for supplies, materials and equipment, to the lowest legally responsible bidder meeting the specifications." — *Anthony J. Frascella, Purchasing Agent, Trenton, N. J.*

"The City of Fresno does not have 'preferential purchasing' as it is generally known. However, if prices quoted are equal, bids from firms located within the city shall be preferred over bids from firms located outside the city. In determining the lowest bid the local suppliers are allowed a 1% differential, representing that portion of the sales tax returned to the city."—*Jess Laughlin, Purchasing Agent, Fresno, Calif.*

"Award is made to the lowest responsible bidder, provided all specifications and requirements are met. Arkansas has a 5% preference law over out-of-state bidders; however, it must be requested by the bidder. Arkansas law also requires that a bidder carry a representative inventory to qualify as a bona-fide Arkansas bidder."—*Floyd B. Peek, Purchasing Agent, Little Rock, Ark.*

All-Purpose Municipal Tool

A machine for every job is not always practical—unless it can all be wrapped into one unit. The Town of North Reading, Mass., very nearly reached this goal when it purchased a Model H-50 Hough Payloader with a Wain-Roy backhoe. The tractor, with its attachments, can dig a trench 12½ feet deep. With the rear-mounted backhoe, the operator loses no time in changing from trenching to digging and loading. Winter use of the machine includes snow loading and moving sand and salt out of storage for use in ice control. Here it scoops out a 75-foot trench to connect a catch basin with an existing sewer system.

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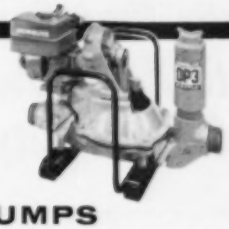
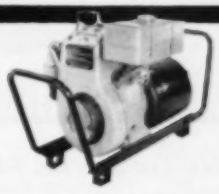
ENGINE-DRIVEN
PUMPS AND GENERATORS



PUMPS

Size	Capacity	Wt.	Model
1½	7000	55	43S1½
2	9000	58	44S2
3	18000	95	45S3
3	4500	118	44DP3 (Diaphragm)



GENERATORS

Watts	Current	Wt.	Model
1500	115 Volt AC	104	46A115
3000	115 Volt AC	170	41A115
3000	115/230 Volts AC	170	41A115/230
5000 (Int.)			
4500 (Cont.)	115/230 Volts AC	250	42A115/230

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For 1961 the Rambler American is more compact *outside*, yet has room for six average adults inside. The American Custom swept to first place over all other compacts in the 1960 Mobilgas Economy Run! Also available in 4-door sedan, 2-door business coupe, 2- and 4-door station wagons.

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The Rambler Classic and Ambassador 5-door wagons are ideal as combination police or fire department vehicles and emergency ambulances.

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Small Suburb Planning

How Westlake, Ohio, solves local problems and stays in harmony with metropolitan regional goals

By **KENNETH L. CRANDALL**, Senior Planner
Regional Planning Commission
Cuyahoga County, Ohio

The payoff, if we can use that controversial word, in urban planning is measurable progress. Without it, planning becomes merely mental exercise.

Westlake, Ohio, a small community within the metropolitan Cleveland area, merits attention. Its local government has made planning a part of its general day-to-day operations, not something done on a sporadic basis.

Regional Commission

The municipality does this by utilizing the resources of the Regional Planning Commission of Cuyahoga County. This organization, established in 1947, is an official planning agency organized as provided under the Ohio Statutes. To the county and its member municipalities it has a two-fold responsibility: to prepare regional or county-wide plans; and to provide planning services to its member cities and villages on a cost basis.

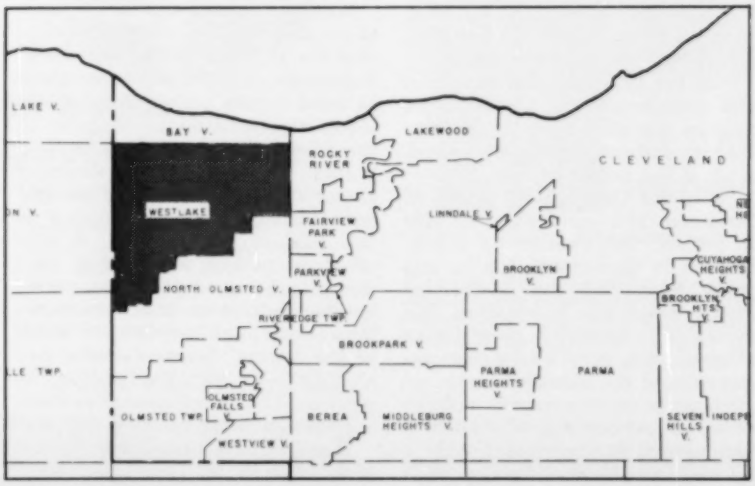
Each year 20 to 25 municipalities call upon the staff for various planning studies. We currently are preparing comprehensive plans in six communities.

Westlake, one of 50 member municipalities, is located on the western edge of Cuyahoga County and is beginning to process more new subdivisions as the land westward from Cleveland builds up. Completion of trunk sanitary sewers in the eastern half of the city in the near future will result in accelerated growth.

Westlake's 10,400 acres, once predominantly occupied by vast orchards and vineyards, is home today for about 10,000 persons. By 1970, we estimate its population will be more than 20,000. Ultimately it may become a city of more than 40,000.

Because of limited funds, the community earmarked no more than $2,000 per year for planning during the initial period. This financed

(Continued on page 170)



Westlake's position in the Cleveland metropolitan complex has enabled the municipality to use the service of the Regional Planning Commission.

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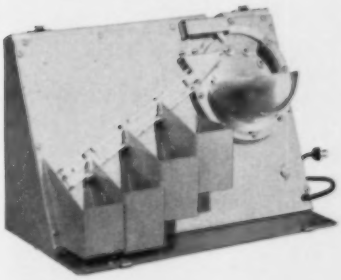

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(Continued from page 169)

preparation of base maps; the actual planning work began in 1955. The funds requested for 1961 will be triple the original figure.

Completed Plans

To date, the community has completed these portions of its Comprehensive Plan:

1. Land Use Plan

a. *Business Study* — Several stores in scattered locations and a small center of about 40,000 square feet represent Westlake's present shopping facilities. Using data from our county study, we made estimates of the amount of land needed for future centers, and the Commission has indicated its preferred locations for a major center and four smaller ones.

b. *Land for Industry* — The Commission is proposing that about 400 acres be added to the present industrial area between the Nickel Plate Railroad and Detroit Road in the northern part of the city.

c. *Residential Areas*—Present zoning is predominantly for one-family residences on lots of 75 feet width and 15,000 square feet in area. The city believes this to be a proper lot size which is consistent with the upper-middle and upper-income housing now being built. Areas for multi-family housing will be selected but will be planned to accommodate not more than 15% to 20% of the city's ultimate population.

2. Thoroughfare Plan

Except for a suggested location for a limited access highway, all proposals are shown in the Thoroughfare Plan which was approved more than two years ago. Proposals are based upon the land-use plan and probable developments in adjoining communities which will have some effect on traffic in Westlake.

3. School and Recreation Plan

With the land-use plan as a start and considering the community's opinions about density of population, we estimated probable growth in all of the neighborhoods.

Thus, the Commission, Board of Education, and our staff were able to project the number of school children in elementary, junior, and senior high, and the number of schools which will be required. We were able to develop a general plan of school sites, aided by the close cooperation of the School Board.

Since the school sites will be large enough to provide a good portion of land needed for recreation, only a few small neighborhood playgrounds remain to be chosen. Westlake residents use their own 90-acre Clague Park as well as facilities of the Cleveland Metropolitan Park District. We are, incidentally, completing a study for the Metropolitan Park Board which will recommend acquisition of land in the southwestern part of Westlake for a new reservation. A proposed city park, north of the City Hall and adjacent to the new Senior High School site, completes the recreation plan.

4. Local Street Planning

In Cuyahoga County, parcels facing county roads are rapidly being subdivided, leaving few remaining points of access to vast amounts of acreage. Because the City of Cleveland will not extend water lines into areas having no sanitary sewers, the problem of isolated acreage is further complicated in Westlake.

The staff has prepared local street plans for the eastern half of the city which indicate exact locations for access roads to undeveloped areas and a guide plan of a system of local streets which relate proposed subdivisions to remaining vacant land. In preparing its 1961 budget, the city council is setting aside $20,000 in a revolving fund to purchase land needed for access roads.

It is at this stage in planning that we show exact location for schools, playgrounds, and other public facilities.

5. Implementing The Plan

More important than the impressive pile of maps and data, is the fact that these plans are being used and followed. Many developers now check with the Planning Commission as to future land use, street plans, etc. *before* presenting development plans. The School Board meets with the Commission *before* it options land for new schools.

Westlake implements some parts of its plan through subdivision regulations and the zoning ordinance. Subdividers follow Commission plans of local streets and dedicate additional right-of-way to conform to the Thoroughfare Plan.

Just recently, a new shopping center district was created to deal with planning problems unique to this kind of development. A new off-street parking and loading section has been adopted and under consideration is an ordinance regulating signs in all use districts. Much of the "string" business zoning has already been removed and in its place land has been rezoned to more appropriate uses.

The Planning Commission, presently chaired by Dan Cass, takes an active part in the planning program. Weekend meetings and field

trips are not uncommon. Members speak frequently before various groups in the community to explain their proposals. The Council respects the Commission's ideas, and has upheld Commission recommendations consistently. Most essential to continuing the program, the City Council and Mayor Hugh D. Price have provided the Commission with funds to continue the work of the Commission and the R.P.C. staff. Since 1954, about $10,000, has been spent for planning. ◄◄

Fort Worth Study Shows Growth Need

Fort Worth, Texas, recently published a detailed land-use survey. The survey disclosed that it is a city with:

- **a large number of single-family homes.**
- **very few apartment buildings.**
- **considerable park land.**

This horizontal growth for Fort Worth, the Planning Department finds, is the natural development of a city a major portion of whose population consists of young families wishing to have their own homes located where they will have some open space around them.

However, it is an expensive type of development for a city. It means more streets, water and sewer lines, larger police and fire forces to serve a scattered population, rather than a compact one.

The study also shows much of Fort Worth yet undeveloped. The open space on the edge of the city has little effect on the economic structure, since it requires few services. But the vacant lots and larger, sparsely-developed tracts within the built-up sections present a different picture. Here, city services are available but not fully utilized.

The Planning Department has expressed the hope that new growth will be guided into the vacant areas within the present city in order to promote orderly compact development outward from the center. The planners believe that this type of growth will aid in attracting new business and industry, thereby broadening the city's tax base. ◄◄

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How We Paint Steel Structures

By J. M. HEFFELFINGER, Bridge Engineer
Cleveland, Ohio

Generally, one paints a structure for two purposes: to improve its appearance and to protect it. When painting steel structures owned by the City of Cleveland, we reverse the order. We paint primarily to protect. While painting, we strive to give the structure a pleasing appearance but we do not sacrifice protection for prettiness. Nevertheless, since the paint manufacturers have been resourceful in providing products that protect in a wide variety of colors, we can reconcile the two purposes without great difficulty.

"A thorough cleaning of the metal is as important as the painting itself."

To provide protection, we separate painting operations into three main subjects:

- **preparation of surface to be painted.**
- **kind and quality of materials to be used in the manufacture of the paint.**
- **application of the paint.**

We have found very limited use for varnishes, oils other than linseed, waxes, plastics and similar products in our work on steel structures.

To satisfy our needs, some 25 years ago we prepared brief specifications for paint and its application which we thought would serve our purpose. We then reviewed this outline with some of the major paint manufacturing companies and, after considerable study, prepared what we now call "Standard Specifications for Painting" which we use as a basic specification. From time to time we ask for and get the latest thinking of the research departments of the various paint companies. From their data, we revise our standards when we are convinced that a particular change has merit.

Preparation of Surfaces

We are becoming more and more firm in the belief that a thorough cleaning job to prepare the metal surfaces is as important as the painting itself. Too often, we have seen this step dismissed as unimportant, principally because it is rather difficult.

One can use at least five methods of cleaning the structural steel. We rate them in order of their value as follows:

- **sand blasting**
- **flame cleaning**
- **chipping and power brushing**
- **hand brushing**
- **chemical cleaning**

Sand blasting costs more than the other methods in most instances. However, structures are expensive to erect and we feel strongly that the few extra dollars required by sand blasting are well worth the investment.

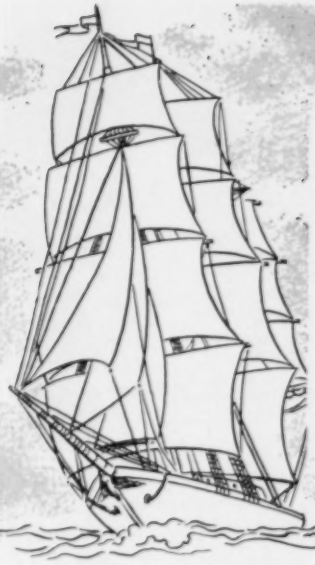
For structural work in this department, our standard specifications cover two kinds of paint: red lead and white lead. All structural members receive four coats of paint: two of red lead and two of white lead.

The first coat is a red-lead

(Continued on page 175)

Why Rust-Oleum is different—

and what this difference, backed by 35 years of industry proof, means to you!



A Sea Captain developed it . . . Industry proved it!

The original Rust-Oleum formula was developed nearly fifty years ago by Sea Captain Robert Fergusson, who became intrigued with the rust-stopping qualities of fish oil early in his career. Creating a *special treatment* for the fish oil, he used the *specially-processed fish oil* as the vehicle in combination with fine rust-inhibiting pigments. The result? A coating that actually *stopped rust* when applied directly over sound rusted surfaces, after scraping and wirebrushing to remove rust scale and loose rust. Possible, because the *specially-processed* fish oil penetrated the rust to bare metal. This was the birth of Rust-Oleum's *exclusive* 769 Damp-Proof Red Primer.

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Today, Rust-Oleum in its many systems and colors, has been proved throughout industry for over thirty-five years. This proof by leading industrial users is your assurance of savings in time, money, and metal. Economies made possible by the fact that Rust-Oleum 769 Damp-Proof Red Primer goes right over the sound rusted metal—usually eliminating costly surface preparations. And Rust-Oleum, in its various systems, resists rain, sun, fumes, heat, weathering, chemicals, etc., for lasting beauty over the years.

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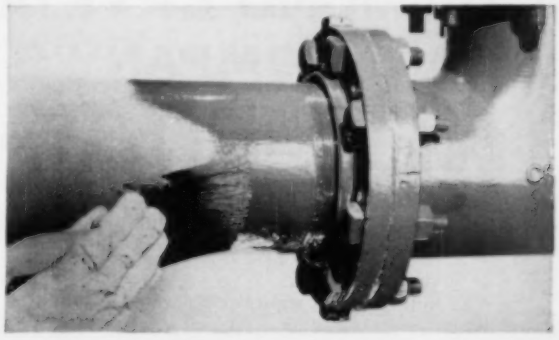
The Rust-Oleum New Color Horizons System introduces a new coating concept to industry. It combines four important factors: (1) the ability to stop rust, (2) smart, modern color harmony, (3) the durability to last and last, (4) ease of application that saves time, money, and metal. See how this system can bring lasting beauty to your plant, machinery, equipment, pipes, tanks, structural steel, fences, etc. Write for complete information or contact your nearby Rust-Oleum Industrial Distributor. He maintains complete stocks for prompt service.



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2604 Oakton St., Evanston, Illinois

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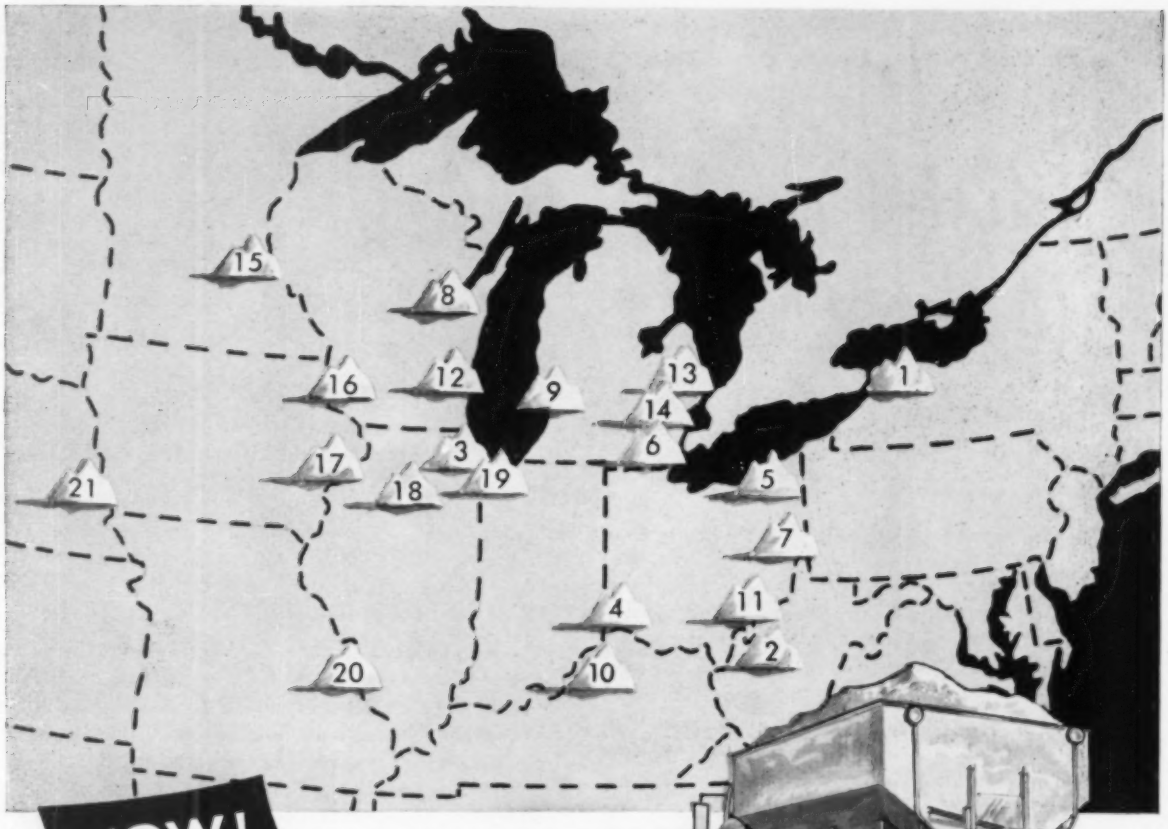
- ☐ Results of radioactive tracing study on Rust-Oleum fish oil penetration.



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(Continued from page 172)

primer. This is the standard paint product with a small amount of thinner to give better covering and penetration.

The second coat is red lead without any dilution of any kind, brushed on.

The third coat is white without dilution and also brushed on.

The fourth or color coat is white lead, tinted with lamp black to produce a grey color of the desired shade, usually medium grey. We do not permit any dilution of this coat. If we want a color other than grey, we can produce it by adding the proper pigment to white.

The red lead required in our specifications is the basic red lead material with linseed oil and drier. It weighs from 24 to 26 pounds per gallon. When it must be thinned, we specify the use of turpentine only.

The white paint consists of basic white lead with linseed oil and drier, with a resulting weight of 19 to 21 pounds per gallon.

Materials

The materials themselves must of course be good and, even more important, they must be mixed in the right proportions. We make it a practice to take representative samples from factory-sealed containers when the paint is delivered to the site. We send these samples to an outside laboratory that determines acceptance or rejection of the paint.

We also check the paint by taking samples from the painter's bucket and send these to the laboratory for checking with the original samples. If we find evidence indicating that the paint has been tampered with, we promptly reject and remove from the job all the paint that is in buckets and opened containers. If we catch a painter tampering with the paint, we insist on his dismissal. This may seem to be rough treatment but, once it is understood, we have little trouble. In fact, we have had wonderful cooperation.

"If we catch a painter tampering with the paint, we insist on his dismissal."

Our specifications require paint to be applied to dry surfaces, free from grease, oil or other substances or coating which would in any way prevent good bonding of the various coats of paint. We also require painting to be done at temperatures above 40°F and below 90°F and not in the direct sunlight where the metal surfaces become too hot to paint. We also require ample drying time between coats of paint. Normally, we do not permit spraying nor is it practical with our paint because of its weight. If, however, certain portions of the structures are inaccessible for brush application, we permit spraying but insist that the thickness of the resulting film must be equal to a brush coat.

Many probably will say that this looks like a rigid program. We have found that although a good job costs more money at first, it

(Continued on page 176)

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modern trailblazers install MIRO-FLEX embossed street name assemblies

The solid, permanence of MIRO-FLEX embossed street name assemblies commands respect wherever they are installed — an expression that the community takes pride in its town. These tough, durable assemblies withstand weather wear, offer snap-out legibility with the smart styling that complements both suburban developments and the groomed elegance of established neighborhoods. Made of zinc-coated, Bonderized steel with baked-on enamel finish, MIRO-FLEX signs are embossed for extra strength and rigidity. They can be reflectorized with moisture-proof beads or reflective sheeting. Buy MIRO-FLEX assemblies. Competitive makes are ... rarely as attractive ... never so enduring.

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(Continued from page 175)

justifies itself in long-term savings to the city.

We believe that the repainting of existing structures is as important as painting new work. In many cases, the idea of thorough cleaning and the use of a four-coat paint job seems to be out of proportion to the value or continued use of the structure. We do not agree.

We believe that here is a place where the greatest amount of good can be done by giving each structure the full paint treatment. It prolongs the life of a bridge for example, for many years and thus saves replacement cost. When a structural member corrodes, it reduces the value of that member. If we can eliminate corrosion, we maintain the strength of the bridge, aside from possible fatigue stresses which no paint job can remedy or arrest.

On an average, a repaint job, including thorough cleaning, will run about 6% to 7% of the cost of replacement. In other words, a bridge can be painted 15 times for the cost of a replacement.

The Bureau of Bridges operates as part of the Department of Public Service; Mr. Louis L. Drasler is Director. Mr. Jay R. Katz is Commissioner of Engineering and Construction, a subdivision of the Department of Public Service. The writer is engineer in charge of the bureau of bridges under Mr. Katz. ◄◄

Physical Exams Benefit City and Employees

An employee physical-examination program, started last year in Fresno, Calif., has already paid dividends for the employees. Of the 500 examinations completed thus far, City Administrator R. N. Klein reports:

- **uncovering of a compensable physical difficulty, in one employee, not previously detected.**
- **discovering a heart condition, unknown to the employee, dictating transfer of duties for his protection.**

The program started at the recommendation of the city's civil service board. Fire, police, and waste-disposal personnel will receive examinations annually. Other employees will be examined once every three years. The examinations uncovered few serious problems but it did reveal a number of minor difficulties that could be corrected within a reasonable time. ◄◄

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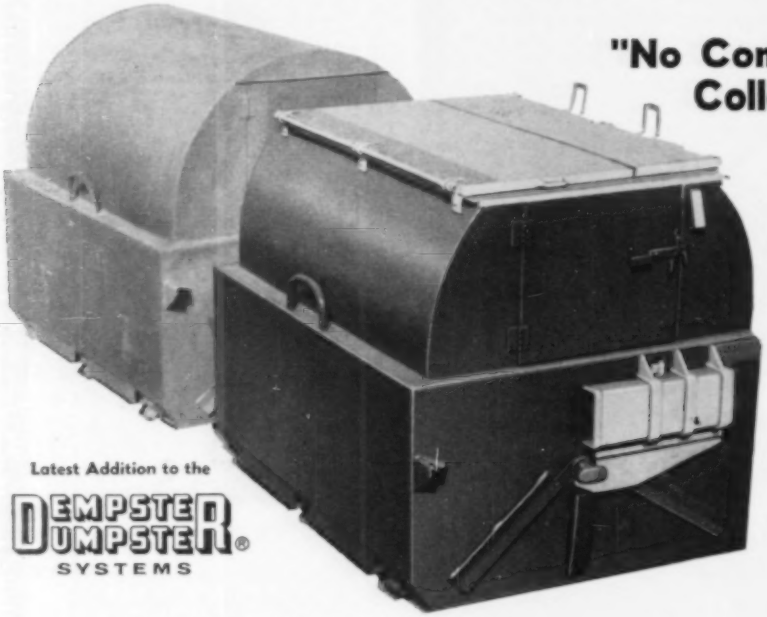

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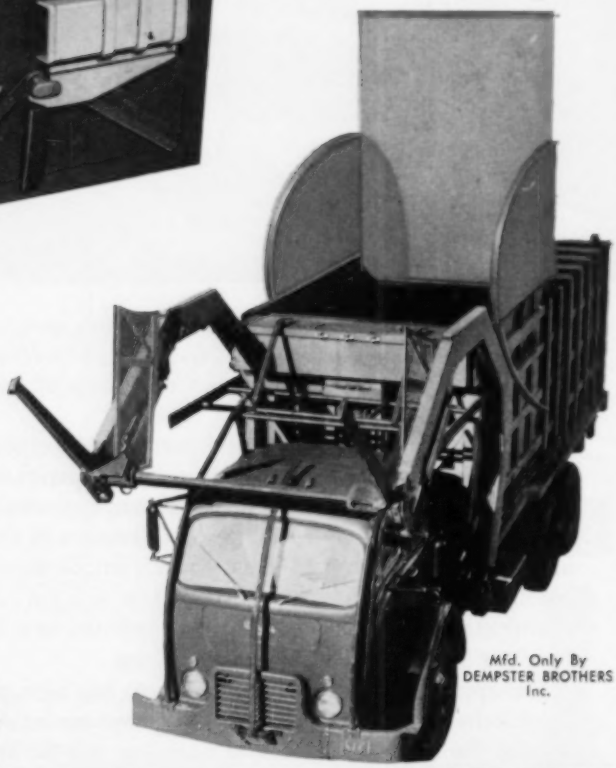

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The SUPER DUMPMASTER engages container.

Clearance arms carry it toward hopper opening.

Container is rotated, emptying contents into the compaction body.

ZONING AND PLANNING DECISIONS

Edited by NORMAN WILLIAMS, Jr.

Junk Yard in Residential Area—Use of Licensing Power to Regulate

NEW YORK. *Bolongo* v. *O'Connell*, 7 New York (2nd) 155, 164 North Eastern (2d) 389 (Court of Appeals (highest court), December 3, 1959).

This case involved an application to the New York City Commissioner of Licenses for a license to conduct a junk yard on vacant land—zoned unrestricted, but described in the record as "predominantly residential in character" — in Springfield Gardens, Queens. The land involved was a small semi-industrial strip, near a branch of the Long Island Railroad, and surrounded entirely by low-density residential development. The license was refused by the Commissioner, on the ground that a junk yard would be harmful to this predominantly residential area—and that in deciding on the license application, the Commissioner was not bound either by the zoning designation or by the certificate of occupancy which had already been issued by the Borough Building Superintendent.

In the opinion, after holding that regulation of junk dealers was admittedly valid under the police power, the court decided that the administrative code did not in fact give the Commissioner the power to withhold a license on the grounds cited here. The opinion contains an interesting discussion of the need for some administrative flexibility and discretion in such a situation; but it was emphasized that "Administration *discretion* must be guided by an express or clearly implied standard, policy or purpose." In order to find this, the court turned to the history of junk yard regulation; and it was held that here the requirement of a license was intended "to eliminate or at least curtail the readily available market for stolen property which this business affords." In deciding whether or not to issue a license, the Court therefore held that the Commissioner's "delegated discretion was intended, in this instance, to be limited to this specific subject, i.e., to the prevention of the distribution of stolen goods." In further documentation of this point, the court emphasized that in New York City the Planning Commission* and not the License Commissioner, was authorized to regulate the location of trades and industries, "in accord with a well-considered plan." It was therefore pointed out that, if the Commissioner made his own separate determination on whether a proposed location was appropriate for a junkyard, this might well subvert such "well-considered plan."

"Nowhere in the sections before us is there any indication of an intention to bestow conflicting jurisdiction to these administrative bodies**." The planning factors were therefore held to be relevant to the Commissioner's decision only insofar as they had some relationship to the statutory purpose. It was also emphasized that, under the New York City zoning resolution, many equally or more obnoxious activities could be carried on in an unrestricted district with the separate requirements of a license.

"Although the Legislature clearly intended, under its police power, to regulate the junk business in each of its distinct aspects of public concern (i.e., zoning and prevention of crime), there should be no doubt that the power to do so was divided and separately conferred."

There is no question that the present "unrestricted" zoning on such a strip is most inappropriate. However, this opinion deals with basic questions of the distribution of governmental power.

Two judges dissented, arguing that the commissioner had the right to take "broader grounds" into consideration in administering the licensing law.

While disavowing the significance of planning factors in the situation under consideration, this decision is an important one in planning law, for two reasons. First, the opinion spells out, more sharply than is usually the case, the controlling considerations limiting the exercise of administrative discretion—based

(Continued on page 181)

* In reality, the Planning Commission and Board of Estimate jointly.

** The New York City Planning Commission's has exclusive jurisdiction to initiate amendments to the zoning text and maps, subject to qualified review by the Board of Estimate. The Commission's action on zoning are "sub-legislative" or perhaps "quasi-legislative" in character. The reference to the commission as an administrative body, in this context, is presumable inadvertent.

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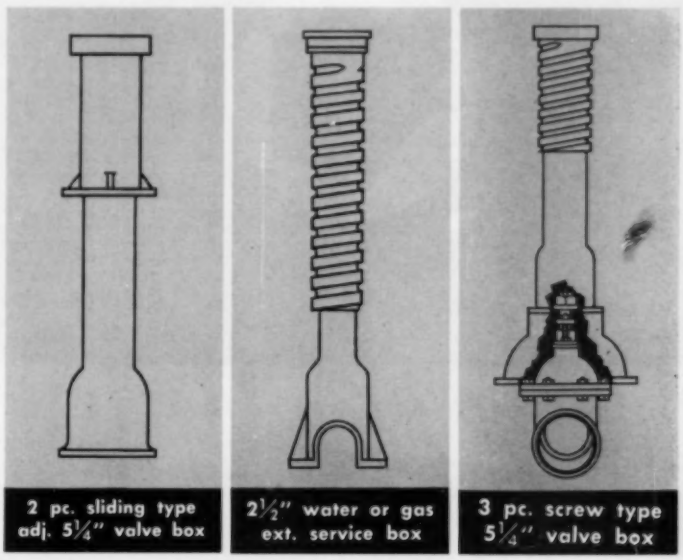

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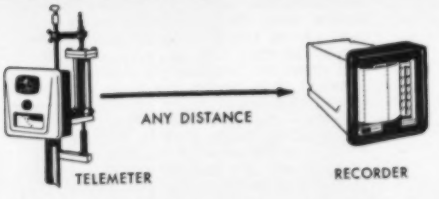

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(Continued from page 179)

upon the purpose of the statute involved. Zoning (and other planning) legislation is frequently vague on the criteria for limiting the administrative discretion given, and for that matter even on the statutory purpose; and so this type of judicial warning is timely and relevant. In the second place, this decision makes clear (at best for New York State) that other legislation is not to be lightly construed as giving concurrent jurisdiction as an instrument of land-use control. In many communities there are all sorts of such controls, scattered all through local law, and generally uncoordinated with the basic zoning and other planning controls. This opinion is therefore a step in the right direction, of centralizing authority—and responsibility for getting results—in those in charge of the zoning controls.

Designation as Urban Renewal "Sponsor"

NEW YORK. *Ungar* v. *Moses*, 195 New York Supplement (2d) 327 (Supreme (lower) Court, November 23, 1959).

In this case one Ungar was designated by the New York City Slum Clearance Committee as "sponsor" of an urban renewal project, involving spot clearance of scattered buildings on the Upper West Side of Manhattan, and was reconfirmed as "sponsor" nearly two years later. Subsequently the Committee made changes in the preliminary redevelopment plan to include institutional participation (a college), and dropped Ungar as sponsor of the housing portion. Ungar brought this action, arguing that the Committee has no power either to remove him as sponsor or to change the preliminary plan.

In the opinion, the Court emphasized that the relatively new New York enabling legislation, dealing with renewal of deteriorating areas, contained no mention of any requirement for the designation of a sponsor in either preliminary or final plans—and that in any event the decision on sponsorship was one for the Board of Estimate and not for the Committee, so that a petitioner had no standing to challenge the preliminary decision at the present time.

Playground in Residence District—Covenants

MICHIGAN. *Kaplan* v. *City of Huntington Woods*, 99 North Western (2d) 514 (Supreme (highest) Court, November 24, 1959).

In this case the municipal government in a Detroit suburb had signed a scheme of restrictive covenants, limiting some scattered city-owned lots and a few others to "residence purposes only with but one single residence to each lot." This particular scheme of covenants did not apply to all the other lots in between, though these had been similarly restricted. Subsequently the single-family residential zoning restrictions applying to this Woodward Avenue frontage were invalidated in court*. The city now proposed to build a playground on two of these lots; and, when the adjacent owners sought an injunction, the city pleaded that its action in signing the covenants was *ultra vires*, and that those were therefore invalid.

In the opinion, the Court held that the only consideration passing to the city was the mutual promise embodies in the covenants—and that in any event the execution of the covenants must involve either a sale or a gift of property rights, and yet did not comply with the charter requirements for either a sale or a gift.

* Bassey v. City of Huntington Woods, 344 Michigan 701, 74 North Western (2d) 897 (1956).

Rural-Urban Conflict Declines in Texas

Dr. James H. McCrocklin, president of the Texas Municipal League and Mayor of Kingsville, finds that the rural-urban conflict of interest on Texas public policies is dying out rapidly, although a belief in such a conflict still exists.

McCrocklin made the statement in releasing the text of a letter addressed to each member of the Texas Legislature expressing appreciation "for the earnest, patient and constructive attention given to presentations made by and on behalf of cities in Texas."

The constituents of the present Texas legislature, he says, are 75% urban, the highest in the history of Texas. Even those representing primarily agricultural districts of Texas serve constituents whose point of view is essentially urban. Under this division, he has found that there cannot be, should not be, and is not any basis for a tug-of-war between rural and urban. ◄◄

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LEGAL NOTES AND DECISIONS

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel

Condemnation—Landlocked Property—Easement Granted

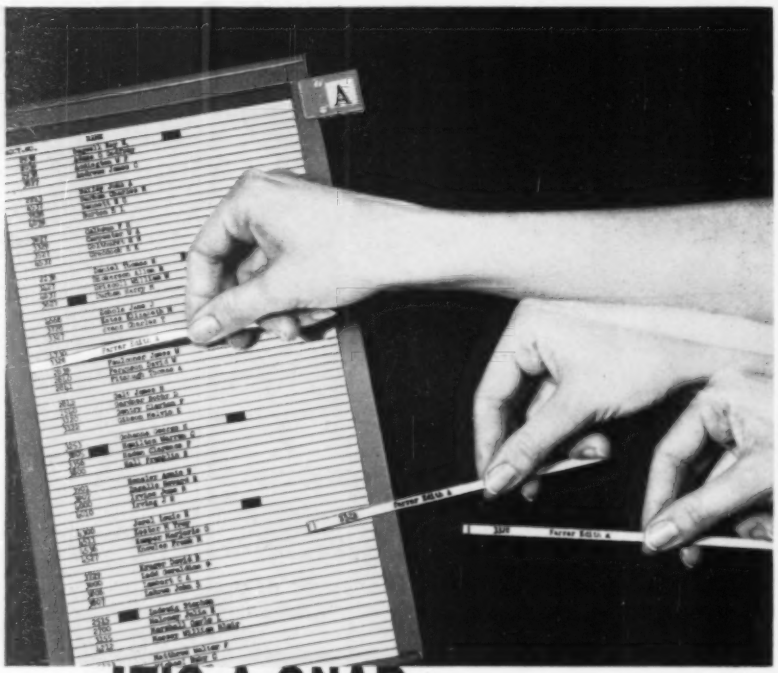
In proceeding to condemn easement across defendants' land to provide access for property landlocked when freeway was built by state, held easement granted. *People* v. *Chevalier*, 340 P.2. 598 (Cal., June 16, 1959)

Contracts—Water Distribution Pipes—Specifications Valid

In action to enjoin awarding contract for construction of water lines requiring contractor to lay prestressed pipe where only one manufacturer made such pipe, held contract not in violation of statute respecting creation of monopoly. *Pacella v. Metropolitan District Commission*, 159 N.E.2d 75 (Mass., June 4, 1959)

Parking Meters—Installation—Injunction Denied

In action to enjoin city from installing and operating parking meters on streets for regulation of traffic, held injunction denied. *City of Healdton* v. *Beall*, 341 P.2d 583 (Okla., June 30, 1959)



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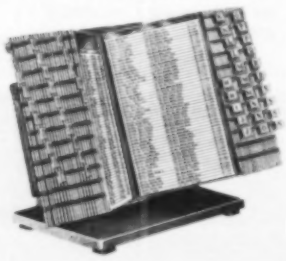

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Police—Reduction in Work Week Approved

In proceeding contesting action of Burgess in reducing policemen's work week, held action approved and borough council, even though it had responsibility of providing compensation for policemen, did not have authority to decide hours of employment. *Bosler* v. *Rahn*, 151 A.2d 627 (Pa., May 28, 1959)

Sidewalks—Fall on Ice—New Trial

In action against city for injuries sustained in fall on sidewalk allegedly due to accumulation of ice in form of uneven ridges and depressions, held since evidence showed dangerous conditions more than mere slipperiness had existed for more than ten days before accident new trial granted. *Hall* v. *City of Anoka*, 97 N.W.2d 380 (Minn., June 26, 1959)

Taxation—Unequal Assessment Upheld

In application against wrongful assessment of taxes on personalty where taxpayer showed assessment put unequal share of tax liability on it, held relief denied since assessment was not "manifestly excessive." *E. Ingraham Co.* v. *Town and City of Bristol*, 151 A.2d 700 (Conn., April 8, 1959)

Tort Liability—Fall in Park—City Not Liable

In action by pedestrian for injuries sustained in fall on parkway allegedly as a result of its slope and presence of small stones, held city not liable. *Cugdil* v. *City of Marion*, 159 N.E.2d 28 (Ill. App., June 8, 1959)

Trailers—Plumbing Permit Ordered

In action to compel township to issue permit to install plumbing lines to connect individual trailers with septic tank already in place, held claims based on township ordinance and plumbing code enacted after construction of facilities for trailer camp did not justify refusal to issue permit. *Dively* v. *Tanner*, 151 A.2d 665 (Pa. Super. Ct., June 10, 1959)

Zoning—Amendment—Council's Motives Will Not Be Examined

In suit to have zoning ordinance amendment declared invalid, held amending ordinance was legislative function and motives of councilmen in voting for amendment were not proper subject for judicial inquiry. *Schauer* v. *City of Miami Beach*, 112 So.2d 838 (Fla., May 8, 1959)

Zoning—Powers of Board of Adjustment Exceeded

Where zoning board of adjustment granted permit for killing chickens on premises of kosher butcher shop located in local retail zone, held such action illegal as beyond powers given to board by statute. *Gartner* v. *Board of Adjustment of San Antonio*, 324 S.W.2d 454 (Tex. Civ. App., June 3, 1959)

Zoning—Realty Office in Home Denied

In proceeding concerning application for permit to maintain real estate in petitioner's home, held where petitioner had not procured permit or acted in reliance thereon application would be denied. *Rodelli* v. *Burns*, 187 N.Y.S.2d 301 (N.Y. Sup. Ct., Nassau Cty., April 14, 1959)

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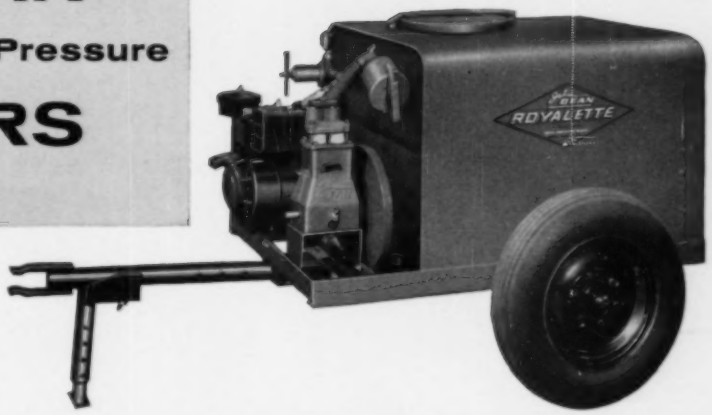

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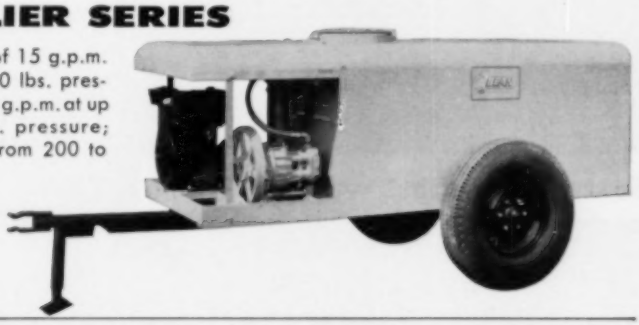

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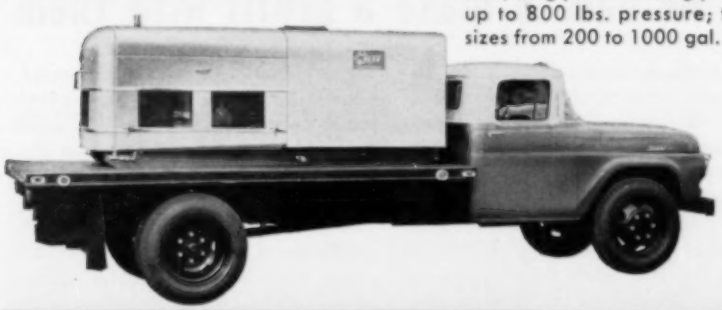

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Brookfield, N.Y., finds Best Bid the best way to buy

"We buy machines as if we had to make a profit with them"

Mr. Lester D. Burch, Township Superintendent, Brookfield, New York: "Our community doesn't buy construction equipment very often. When we do, we need equipment that will give us the best possible performance—and do it at the lowest cost. That's why we look for *best bid* when we buy.

"No one knows more about *best bid* than a construction man who has to make money with his machines. And most contractors I know prefer to buy Caterpillar equipment. I figure what works for them will work for us.

"And it does. Take our new 93 HP D6B Tractor, for example. It has one feature alone that makes it worth a lot more to us than the other machines bid. This is the hydraulic tilt cylinder attachment. Our road work involves a lot of ditching. The tilt cylinder attachment lets the operator tilt the blade without leaving his seat. The amount of time this saves—and extra work it helps us get done—really adds up when you do a lot of ditching."

Mr. Burch mentioned another reason the town selected the D6. They needed a machine that would stay out of the shop—keep on the job. They liked the idea of the oil clutch that almost never needs attention . . . lifetime lubricated track rollers they could forget until rebuild time . . . the dry-type air cleaner that gets rid of the expense and mess of oil bath filter elements. All in all, the combination of extra performance, dependability and low-cost maintenance offered by this machine made *best bid* buying the town's best bet. Where it gives the private contractor a profit, it saves money for taxpayers.

Check the money-saving, time-saving features of Caterpillar-built machines when you need a tractor, loader, motor grader, engine or other earth-moving equipment. Your Cat Dealer can give you complete facts and a demonstration if you wish. And ask him about our new sanitary landfill movie: "A Decent Burial." He will be glad to arrange a showing.

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RECENT CITY MANAGER APPOINTMENTS

Gordon Bennett
Ottumwa, Iowa

W. R. Miller
Sikeston, Mo.

G. C. Stubbert
Sutherlin, Ore.

R. R. Robinson, Sr.
Dothan, Ala.

W. T. Loman
Durant, Okla.

R. A. LaFountain
Winooski, Vt.

VICTOR E. BARTON, manager of Madera, Calif., for the past three years, has been appointed manager of Bell, Calif., succeeding Donald W. Mansfield.

CHARLES W. BELL, assistant to the personnel director and budget officer of Springfield, Mo., has been appointed manager of Richmond, Mich., succeeding Samuel Grey.

GORDON BENNETT, administrative assistant of Ottumwa, Iowa, has been appointed manager of that city, succeeding Frank H. Lawler.

RICHARD L. BLACK, chief administrative officer of Englewood, N. J., for the past six years, has been appointed manager of Webster Groves, Mo., succeeding Harold C. McClintock who died on October 3, 1960. Mr. Black was previously chief administrative officer of Bronxville, N. Y.

DAVID I. BONER, administrative assistant of Glenview, Ill., has been appointed manager of that city, succeeding Walter J. Hoffman, who died on February 2, 1961.

JOS BUISSON has been appointed manager of Shawinigan, Quebec, Canada, succeeding Robert Dorion, who recently retired.

PETER C. BYARS has been appointed manager of Halifax, Nova Scotia, Canada, succeeding A. A. DeBard, now manager of Peoria, Ill.

WILLIAM F. CONDRON, JR., administrative aide to the manager of Lubbock, Texas, has been appointed manager of Rosebud, Texas, succeeding Don R. Edmonds.

F. R. ECKERT, controller, Glen Ellyn, Ill., was recently appointed manager of Northlake, Ill., succeeding Robert J. Eppley, now manager of Lombard, Ill.

DON R. EDMONDS, manager of Rosebud, Texas, has been appointed manager of Donna, Texas, succeeding Gay Walker, now manager of Mercedes, Texas.

JOHN W. ELWELL, comptroller at Montrose, Colo., has been appointed manager of Rangely, Colo.

KENNETH ERICKSON, administrative assistant of Lynwood, Calif., has been appointed manager of that city, succeeding A. J. Bateman, who died in October 1960.

CASEY FANNIN, manager of Columbia, Mo., has been appointed manager of Tyler, Texas, succeeding Clarence P. Stewart. Mr. Fannin was previously manager of Pittsburg, Odessa and Bryan, Texas.

WILLIAM T. GREEN, JR., manager of Thomasville, N. C., has been appointed manager of Gainesville, Fla., succeeding Robert E. Layton.

HENDRIX A. HEARN, assistant manager of Valdosta, Ga., is the new manager of Cordele, Ga., succeeding S. E. Cox.

PAUL H. HERMANN, manager of Barre, Vt., has been appointed first manager of Barrington, R. I. He was previously manager of Bethel and Bennington, Vt.

DONALD D. HERRMAN, administrative assistant at Oak Lawn, R. I., for the last three years, was recently appointed manager of that city succeeding Robert Price.

CLARENCE E. HORN, JR., acting manager of Marysville, Mich., has been appointed manager of that city, succeeding H. Maxwell Davenport.

STANLEY E. KENNEDY, manager of Dalhart, Texas, has been appointed manager of Alamogordo, N. M., succeeding Rolla Buck.

ELWOOD L. KOCH, administrative assistant, Ferguson, Mo., has been appointed manager of that city, succeeding Robert C. Storey.

ROBERT A. LAFOUNTAIN, manager at Orrington, Me., has been appointed the first manager of Winooski, Vt.

W. T. LOMAN has been appointed manager of Durant, Okla., succeeding Don Dodge. Mr. Loman was previously manager of Pueblo, Colo., Midwest City, Duncan and Pawhuska, Okla.

PETER F. LYDENS, assistant manager of Winston-Salem, N. C., has been appointed first manager of Mount Airy, N. C.

CLAY LYNCH, administrator of Henderson, Nev., has been appointed manager of North Las Vegas, Nev., succeeding Robert M. Nelson.

JOHN MAMAUX, administrative assistant in the Beverly Hills public works department, has been appointed first manager of Del Mar, Calif.

JOHN R. MANSELL, city auditor of Long Beach, Calif., for the past ten years, has been appointed manager of that city, succeeding Samuel E. Vickers.

(Continued on page 186)

R. C. Stephens
Delano, Calif.

Gay Walker
Mercedes, Texas

G. B. Walcott
Lake Alfred, Fla.

E. L. Koch
Ferguson, Mo.

H. A. Hearn
Cordele, Ga.

Clay Lynch
N. Las Vegas, Nev.

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(Continued from page 185)

W. Raymert Miller, director of public works of Columbia, Mo., has been appointed the first manager of Sikeston, Mo.

B. C. Morse, assistant manager of Portland, Mich., has been appointed manager of that city, succeeding Dwayne Partain.

Frederick E. McGuire, acting manager of Brookfield, Ill., has been appointed manager of that city, succeeding Homer P. Ball, Jr.

Daniel O. Potter, assistant city manager of Eugene, Ore., has been appointed manager of Forest Grove, Ore., succeeding M. O. Gardner.

Roy R. Robinson, Sr., has been appointed manager of Dothan, Ala., succeeding R. Powell Black.

Frank R. Saia, administrative assistant to the director of administration of New Haven, Conn., has been appointed manager of Meredith, N. H., succeeding David Sullivan.

Battista J. Santoro, councilman of Mamaroneck, N. Y., has been appointed manager of that city, succeeding William H. Johnson.

Robert W. Smalley, former manager of Riverview, Mich., has been appointed manager of Oxford, Mich., succeeding Ralph W. Precious.

Robert C. Stephens, assistant manager of Sunnyvale, Calif., has been appointed manager of Delano, Calif., succeeding Raymond F. O'Hara.

George C. Stubbert has been appointed manager of Sutherlin, Ore., succeeding Dean Smith.

Cleveland B. Talmadge, manager of Belle Glade, Fla., has been appointed first manager of College Park, Md.

Richard W. Turnlund, administrative officer in Rock Island, Ill., has been appointed manager of Roseville, Minn.

George B. Walcott has been appointed manager of Lake Alfred, Fla., succeeding George G. Costello.

Gay Walker, manager of Donna, Texas, has been appointed the first manager of Mercedes, Texas.

Fred J. Waltz, director of service and safety of Wapakoneta, Ohio, has been appointed first manager of Marysville, Ohio.

Edgar E. Welch, director of public works and city engineer of New Bern, N. C., has been appointed manager of that city, succeeding Clifford E. Pace who died on December 9, 1960.

Orin F. Nolting
Executive Director
International City Managers' Association

City Employment Rises 1953-60

City employment (on a full-time equivalent basis) in America's 18,043 cities rose approximately 20% and municipal payrolls increased 59% from October 1953 to October 1960, according to recently released figures by the Department of Commerce, Bureau of Census.

Municipal government payments for October 1960 totaled $583,000,000

to 1,692 thousand employees, 1,399 engaged on a full-time basis and 293 thousand paid only for part-time services. The part-time component generally pertains to small municipalities, and includes numerous elected officials and paid volunteer firemen—groups usually receiving only nominal compensation.

If part-time employees are counted in terms of average full-time employee pay rates, then the full-time equivalent rises 48,000 to 1,447 thousand employees.

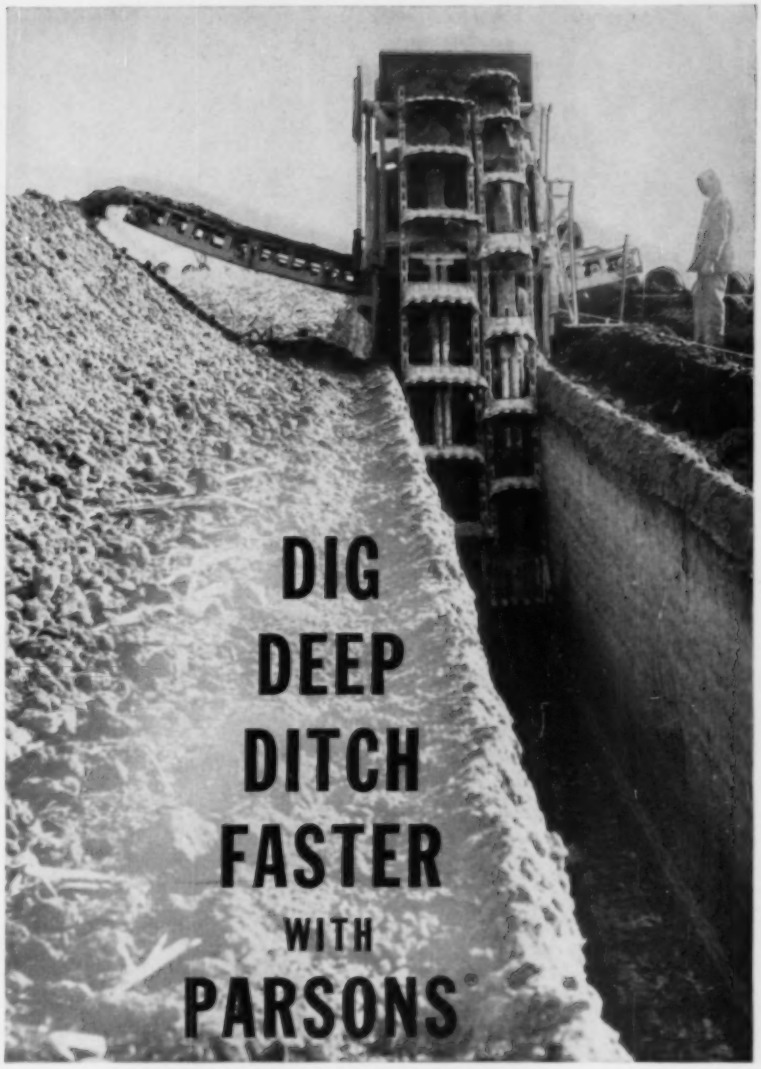
The upward trend in city employment and payrolls for the last decade is exemplified by the 41,000-person (full-time equivalent), $35,000,000 pay increase from October 1959 to October 1960.

Most public schools are provided by school districts which operate as separate local governments. However, where schools are administered by municipalities, this function requires a considerable fraction of all city employment and payrolls. Of the 1,399,000 full-time municipal employees, 216,000 were employed in city-operated schools. Average monthly earnings of full-time employees of city-operated schools rose 33%, from $378 in October 1953 to $502 in October 1960.

The "City Employment in 1960" report explains that pay rates and the rate of municipal employment to population is considerably higher in large cities than in small ones. Employment ranged from 182 per 10,000 for five cities of over 1,000,000 inhabitants to 66 per 10,000 for municipalities of less than 25,000. While full-time payrolls averaged from $452 in the largest municipalities to $311 in the less-than-25,000 class in October 1960, city-operated school pay ranged from $573 to $450 respectively.

The report was based on a mail questionnaire sample of the number of part-time and full-time employees of 675 municipalities of 25,000 population or more. For smaller municipalities a random sample was stratified in terms of the number of full-time employees of the municipalities in April 1957, as determined by the 1957 Census of Governments. Usable reports of 1960 data were received from 95% of the survey panel.

A more-detailed forthcoming companion report, "State Distribution of Public Employment in 1960," will present data for all types of local governments, as well as for states and the federal government: it is based on a mail questionnaire sample of 848 municipal governments. ◄◄



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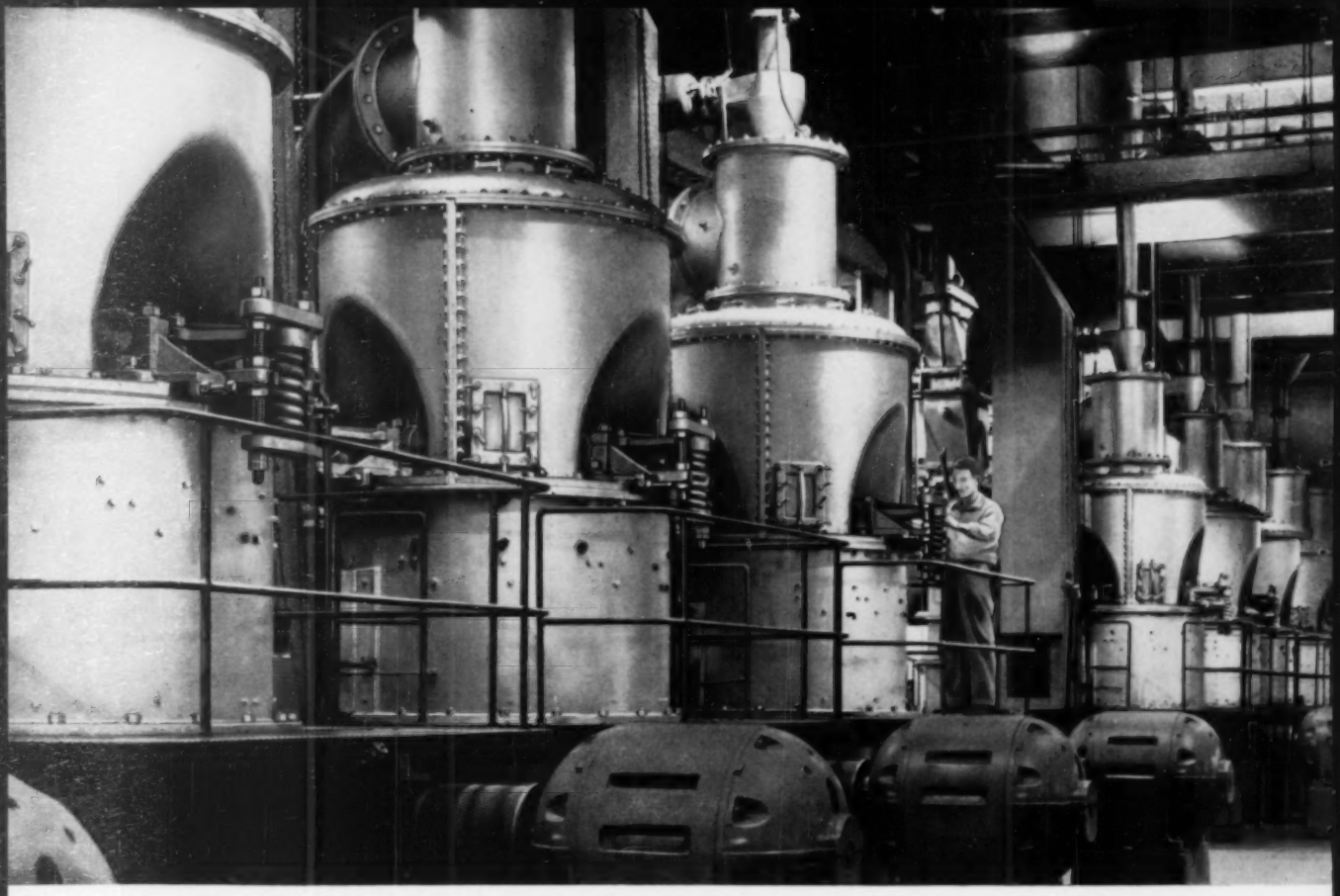

Grinding mountains into microns is the business of the Bowl Mill

In the power generation field, coal is still king. Pulverized to the fineness of flour, it fires the furnaces of the world's power plants where its heat energy is used to generate the bulk of the world's electric power.

The power plant is king coal's castle—and one of its most respected residents is the C-E Raymond Bowl Mill. Each day, in power plants throughout the world, it converts about 900,000 tons of lump size coal—a literal mountain—into a fuel of micron size and spews it in steady streams into the furnaces it serves.

Developed commercially by C-E some forty years ago, pulverized coal firing has made a major contribution to the present advanced state of the art of power generation. It has helped make possible ever larger, more efficient power stations and has enabled them to provide an abundance of electric power at ever decreasing cost to the consumer. Given great impetus by the development of the Bowl Mill in the middle 1930's, pulverized coal has long since become the utility industry's most widely used fuel. Today, its energy produces about 70% of America's fuel-generated electric power, and a large proportion of the power produced elsewhere in the world.

The Bowl Mill is an example of **C**reative **E**ngineering —the **C-E** approach to providing the most advanced designs of boilers and fuel burning equipment for all fuels and steam requirements—from those of small industrial and institutional plants to the largest required in modern utility power practice.

"CREATIVE ENGINEERING" is the reason for the leadership attained by C-E products. The products which bear this mark of leadership include:

all types of steam generating, fuel burning and related equipment • nuclear power systems • paper mill equipment • pulverizers • flash drying systems • pressure vessels • soil pipe

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New York Offices: 200 Madison Ave., New York 16, N. Y.

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CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

May 8-9—Old Point Comfort, Va.

VIRGINIA WATER WASTE AND SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Chamberlin). Sec.-Treas., O. J. Hand, Asst. to the Manager, Hercules Powder Co., Hopewell, Va.

May 8-10—Washington, D. C.

NATIONAL HIGHWAY USERS CONFERENCE. Annual Meeting (Mayflower Hotel). Director, Arthur C. Butler, 966 National Press Building, Washington 4, D. C.

May 10-12—Yuma, Ariz.

LEAGUE OF ARIZONA CITIES AND TOWNS. Annual Meeting (Stardust Hotel). Exec. Dir., John J. DeBolske, 2727 N. Central Ave., Phoenix 4, Ariz.

May 14-19—Minneapolis, Minn.

NATIONAL CONFERENCE ON SOCIAL WELFARE. Annual Meeting (Municipal Auditorium). Exec. Sec., Joe R. Hoffer, 22 W. Gay St., Columbus 15, Ohio.

***May 15-16—Chicago, Ill.**

CONFERENCE ON WATER POLLUTION IN THE GREAT LAKES AREA. Meeting (Pick-Congress Hotel). Write: Lawrence Ragan, Public Relations Dept., DePaul Univ., 25 E. Jackson Blvd., Chicago 4, Ill.

May 15-17—Chattanooga, Tenn.

TENNESSEE MUNICIPAL LEAGUE. Annual Meeting (Patten Hotel). Exec. Sec., Herbert J. Bingham, 226 Capitol Blvd., Room 306, Nashville 3, Tenn.

May 15-18—New York, N. Y.

INTERNATIONAL INSTITUTE OF MUNICIPAL CLERKS. Annual Meeting (Manhattan Hotel). Sec.-Treas., Arthur J. Shinner, Town Hall, Brookline 46, Mass.

May 15-19—Detroit, Mich.

NATIONAL FIRE PROTECTION ASSOCIATION. Annual Meeting (Hotel Statler). Asst. Gen. Mgr., Chas. S. Morgan, 60 Batterymarch St., Boston 10, Mass.

May 21-25—Seattle, Wash.

MUNICIPAL FINANCE OFFICERS ASSOC. OF U. S. AND CANADA. Annual Meeting (Olympic Hotel). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

May 22-24—Ocean City, Md.

MARYLAND-DELAWARE WATER AND SEWAGE ASSOC. Annual Meeting (Hotel Commander). Sec.-Treas., W. McLean Bingley, c/o State Dept. of Health, 301 W. Preston St., Baltimore 1, Md.

May 22-25—Manchester, Vt.

NATIONAL RECREATION ASSOCIATION—New England Section. Annual Conference (Equinox Hotel). Dir. Field Services, Charles E. Reed, NRA, 8 W. 8th St., N. Y. 11, N. Y.

May 24-27—Washington, D. C.

NATIONAL RIVERS & HARBORS CONGRESS. Annual Meeting (Mayflower Hotel). Exec. Vice Pres., William H. Webb, 1028 Connecticut Ave., Washington 6, D. C.

May 25-26—Pullman, Wash.

PACIFIC NORTHWEST INDUSTRIAL WASTE CONFERENCE. Semi-annual Meeting (Washington State University). Sec., William H. Knight, P. E. Head, Technical Exten. Serv., Washington State University, Pullman, Wash.

May 31-June 2—East Lansing, Mich.

MICHIGAN SEWAGE AND INDUSTRIAL WASTES ASSOC. Annual Meeting (Kellogg Center, Michigan State University). Sec.-Treas., D. M. Pierce, Michigan Dept. of Health, Lansing, Mich.

June 1-3—Windsor, Ont., Can.

AMERICAN WATER WORKS ASSOCIATION—Canadian Section. Annual Meeting (Prince Edward Hotel). Sec.-Treas., Dr. A. E. Berry, 72 Grenville St., Toronto, Ontario, Canada.

June 4-6—Jekyll Island, Ga.

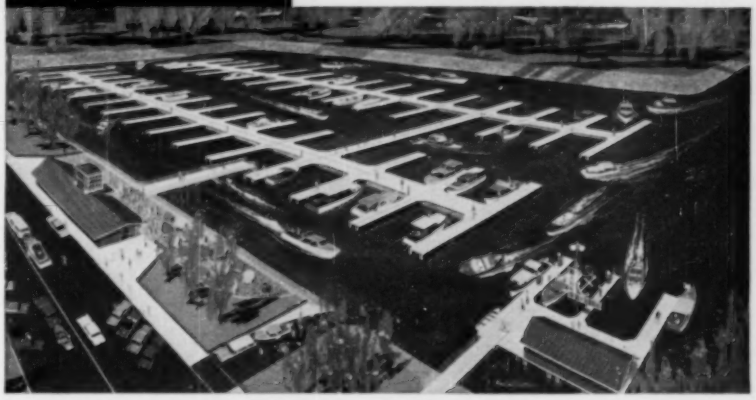
GEORGIA MUNICIPAL ASSOC. Annual Meeting (Corsair Motel). Exec. Dir., W. Elmer George, 406 Fulton Fed. Bldg., Atlanta 3, Ga.

June 4-7—Virginia Beach, Va.

NATIONAL ASSOCIATION OF HOUSING & REDEVELOPMENT OFFICIALS—Southeastern Regional Council. Annual Meeting (Virginia Beach Convention Center). Sec.-Treas., B. H. Marshall, Jr., Dr. 3005, Azalea Sta., Wilmington, N. C.

(Continued on page 191)

MODERN MARINAS by Standard Steel



Sure, Fast Way to a BOATING BOOM for Your Town!

FREE

Full-Color Brochure illustrates today's finest all-steel Marinas, with features and construction details, as well as photos of actual installation. Write for your copy today!

Your town, too, can prepare for boating leadership in *record time* with a modern Standard Steel Marina like this! Includes finest, latest designs in all-steel floating boat slips, colorful boat shelters, non-skid steel floating docks and access ramps, self-adjusting stairways, floating service patios and accessories . . . All pre-planned, engineered, and pre-fabricated for *fast* installation—ready for your boaters in *days* instead of months, lower in cost, yet promising years of safe service.

Start YOUR Marina planning NOW!
Term financing available.

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LEADERS IN ALL-STEEL WATERFRONT EQUIPMENT

CLIP THE COUPON FOR COMPLETE DETAILS

STANDARD STEEL PRODUCTS MFG. CO. Dept. A, 2836 South 16th Street, Milwaukee 15, Wisconsin

We're interested in Modern Boating Marinas —

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☐ Have your Marina Expert call on us for free consultation and planning aid.

NAME..... TITLE.....

ADDRESS.....

CITY..... ZONE.... STATE.....

OPERATING COSTS CUT ONE-THIRD WITH THE LOAD-PACKER 600

Kansas City Contractor Calls Unit Finest He's Ever Owned

"In my 15 years in the refuse collection business," says Charles E. Attebury of Kansas City, "I have never found a better, more dependable packer than the Gar Wood Load-Packer 600."

PLEASED WITH THE SERVICE he receives is Charlie Attebury (right), shaking hands with his Gar Wood-St. Paul distributor, Ernie Pierce of M&E Sales, Kansas City.

Attebury's Load-Packer has allowed him to cut maintenance costs by a third, cut his crew from six men to two, and save 156 man-hours per week. And he did it without any reduction in the size of his route.

In addition to these remarkable savings, Attebury likes the easy loading and dumping characteristics of his new packer. The Load-Packer 600 has the largest, lowest hopper of any 16-yard packer on the market. Crews can handle greater amounts of refuse with fewer packing cycles, saving time, money, and wear and tear on the packer, chassis and engine. And the Load-Packer's telescopic hoist dumping mechanism, a Gar Wood invention, combines fast, positive cleanout with maximum stability.

The Load-Packer 600 is the *one* refuse collection unit that excells in *all* areas of performance—the ultimate in refuse collection efficiency. Start saving money and time right now. See your Gar Wood-St. Paul distributor.

FOUR FEATURES MAKE LOAD-PACKER MOST ECONOMICAL TO OPERATE

Designed into the Load-Packer 600 are four exclusive features that are cutting operating costs for refuse contractors everywhere.

The fast, 10-second packing cycle of the Load-Packer, faster than any competitive body, allows the engine to run at accelerated speeds up to 30% less than other packers.

The big hopper on this machine, 74" wide with a 1½-yard capacity, allows *fewer* packing cycles.

The hydraulic system operates at lower pressures for less strain on the system. And the Load-Packer's exclusive dual volume pump reduces strain on the drive line by 33%.

The simplified design has fewer moving parts . . . less to go wrong. And the controls are so simple they are virtually foolproof, even for inexperienced operators.

GAR WOOD INDUSTRIES, INC.

Wayne, Michigan • Richmond, California

Conventions—When and Where

(Continued from page 189)

June 4-9, Detroit, Mich.

AMERICAN WATER WORKS ASSOCIATION—Annual Convention (Cobo Hall). Exec. Sec., Raymond J. Faust, 2 Park Avenue, New York 16, N. Y.

June 5-7—Tuscaloosa, Ala.

ALABAMA WATER AND SEWAGE ASSOC. Annual Meeting (University of Alabama). Sec., E. J. Finnell, Jr., Box 2987, University, Ala.

June 5-7—Pullman, Wash.

PACIFIC NORTHWEST SEWAGE WORKS SCHOOL. Annual Course (Washington State University). Sec., W. H. Knight, P. E. Head, Technical Extension Services, Washington State University, Pullman, Washington.

***June 7-8—Harwichport, Mass.**

NEW ENGLAND POLLUTION CONTROL ASSOC. Spring Meeting (Snow Inn). Sec.-Treas., Richard F. Greeley, 511 State House, Boston 33, Mass.

June 7-9—Seattle, Wash.

ASSOCIATION OF WASHINGTON CITIES. Annual Meeting (Hotel Olympic). Exec. Sec., Chester Biesen, 250 Smith Hall, University of Washington, Seattle 5, Wash.

June 7-9—Springfield, Ill.

CENRTAL STATES SEWAGE AND INDUSTRIAL WASTES ASSOC. Annual Meeting (Leland Hotel). Sec.-Treas., Scott E. Linsley, 2400 Childs Rd., St. Paul 6, Minn.

June 7-9—Colorado Springs, Colo.

COLORADO MUNICIPAL LEAGUE. Annual Meeting (Antlers Hotel). Exec. Dir., Jay T. Bell, 2300 Broadway, Boulder, Colo.

June 7-9—Okoboji, Iowa

IOWA WATER POLLUTION CONTROL ASSOC. Annual Meeting (New Inn). Sec., L. F. Skorczeski, 207 S. 15th Ave., Marshalltown, Iowa.

***June 8-10—Biloxi, Miss.**

MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Meeting (Buena Vista Hotel). Exec. Sec., Miss Evelyn McGahey, P. O. Box 254, Jackson, Miss.

***June 11-14—Honey Harbour Bay, Ont., Can.**

ONTARIO WATER RESOURCES COMMISSION. Annual Meeting (Delawana Inn). Sec., D. S. Caverly, Dir., Div. of Plant Operations, E. Block Parliament Bldgs., Toronto, Ont., Can.

June 11-14—Washington, D. C.

UNITED STATES CONFERENCE OF MAYORS. Annual Meeting (Statler Hilton Hotel). Exec. Dir., Harry R. Betters, 1707 H St., N. W., Washington 6, D. C.

June 11-15—New York, N. Y.

AIR POLLUTION CONTROL ASSOC. Annual Meeting (Hotel Commodore). Exec. Sec., A. Arch., 4400 Fifth Ave., Pittsburgh 13, Pennsylvania.

June 12-13—Rochester, N. Y.

NEW YORK WATER POLLUTION CONTROL ASSOC. Semi-Annual Meeting (Hotel Manger). Exec. Sec., R. C. Sweeney, State Dept. of Health, 55 Church St., White Plains, N. Y.

June 12-13—Ocean City, Md.

MARYLAND MUNICIPAL LEAGUE. Annual Conference (Commander Hotel). Exec. Sec., A. Beals, Box 276, College Park, Md.

***June 12-14—Albany, N. Y.**

NEW YORK LOCAL GOVERNMENT WORKSHOP. Annual Meeting (Brubacher Hall-State Univ. College of Educ.) Ch., Frank C. Moore, Local Govt. Advisory Board, 155 Washington Ave., Albany 10, N. Y.

***June 14-16—St. Paul, Minn.**

LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Meeting (Hotel Lowry). Exec. Sec., Orville C. Peterson, 15 University Library Bldg., Minneapolis 14, Minn.

June 14-16—Cleveland, Ohio

OHIO WATER POLLUTION CONTROL CONFERENCE. Annual Meeting (Statler Hilton). Sec.-Treas., E. B. Ransom, 101 N. High St., Columbus 15, Ohio.

***June 15-17—McCall, Ida.**

IDAHO MUNICIPAL LEAGUE. Annual Meeting (Shore Lodge). Exec. Dir., R. W. Smith, 348 State St., Weiser, Ida.

June 15-17—Wilmington, Del.

EASTERN ASSOCIATION OF FIRE CHIEFS. Annual Meeting (Hotel Du Pont). Sec., Edwin J. Clark, Box 328, Wayne, Pa.

(Continued on page 193)

Strong as a SAFE

yet easily handled by one man

The FORD YOKEBOX keeps shallow service meters—SAFE from dirt, insects, or larger pests. Cast iron, unbroken barrier on all sides. Keeps dials clean for fast, accurate reading. SAFE from tampering. Locking lid opens only with *lifter* key. Lockless lid also available.
SAFE for pedestrians. Anchor lugs (optional) prevent settling in concrete.
Each Ford Yokebox includes service valve, expansion coupling and service line connections.
Proven for year 'round settings as far north as Virginia. A boon to northern resort areas where lines are drained and meters removed for winter. Make meter changing quick and trouble-free. Prolong meter life.

Battery setting easily read with one stop.

FORD for *better* water services

THE FORD METER BOX COMPANY, INC., Wabash, Indiana

SAFE ALL AROUND!

180° SPEED SWING

ALL-PURPOSE MATERIAL HANDLER

No other equipment in the material handling field offers as much *all-around safety* as the Pettibone 180° Speed Swing!

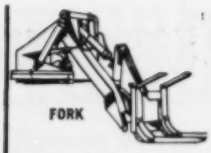
The exclusive Pettibone 180° boom swing permits the operator to load either alongside or in back of trucks. The long boom is located forward, keeping the bucket far out in front of the operator to provide fullest protection from spilled loads. There are no side arms to endanger the operator, as with other loaders. Also, being closer to the ground and with no obstructions around the seat, he can get on and off the machine easily . . . from either side!

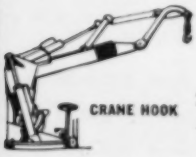
Because of its 180° swinging boom, the Speed Swing is not forced to maneuver back, forth, and all around constantly when loading. It SWINGS THE LOAD instead! This means far *fewer* machine movements and *faster* work cycles . . . with *greater safety* to other workmen, other equipment, and to moving traffic on streets or highways.

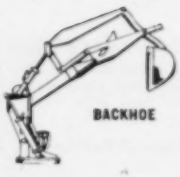
The long boom reach prevents bumping trucks when loading from side or rear. Other type equipment cannot provide this high safety factor. Also, the longer wheelbase, wider tread, and low center of gravity mean more stability and greater safety in moving heavy loads.

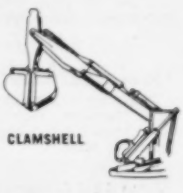
And there's *full* operator visibility for any one of the 10 *quickly-interchangeable* attachments shown at right, at all times during use. To top it off, you make the *safest investment of all* when you choose the Pettibone 180° Speed Swing . . . the most outstanding all-purpose material handler for ALL YOUR JOBS!

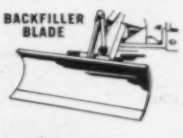
Find out all about it today. Get all the facts on how to safeguard your profits, your working crews, your investment in equipment—and be SAFE ALL AROUND! Write to—

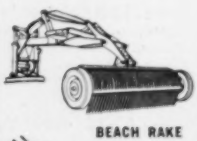












PETTIBONE MULLIKEN CORPORATION

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Conventions—When and Where

(Continued from page 191)

June 15-20—Washington, D. C.

INTERNATIONAL UNION OF LOCAL AUTHORITIES, sponsored by the U. S. Conference of Mayors, the American Municipal Assoc., and the International City Managers' Assoc. Annual Meeting. Exec. Dir., Schuyler Lower, Washington Secretariat, World Conference of Local Governments, Room 526, District Building, Washington 4, D. C.

***June 17-22—Denver, Colo.**

THE ASPHALT INSTITUTE. Annual Meeting (Denver-Hilton Hotel). Ch. Engr. & Sec., Arvin S. Wellborn, Hqs. Asphalt Institute, College Park, Md.

June 18-20—Kiamesha Lake, N. Y.

NEW YORK CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual meeting (Concord Hotel). Exec. Dir., Addison Mallery, 6 Elk St., Albany, N. Y.

***June 18-21—Denver, Colo.**

NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting (Brown Palace Hotel). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

***June 18-21—Philadelphia, Pa.**

PENNSYLVANIA STATE ASSOC. OF BOROUGHS. Annual Meeting (Sheraton Hotel). Exec. Dir., Charles F. LeeDecker, 2415 N. Front St., Harrisburg, Pa.

***June 20-22—Wernersville, Pa.**

AMERICAN WATER WORKS ASSOC.—PENNSYLVANIA SECTION. Annual Meeting (Galen Hall). Sec.-Treas., L. S. Morgan, 59 Meadow Lane, Doylestown, Pa.

***June 25-30—Atlantic City, N. J.**

AMERICAN SOCIETY FOR TESTING MATERIALS. Annual Meeting (Chalfonte-Haddon Hall Hotel). Acting Exec. Sec., R. E. Hess, 1916 Race St., Philadelphia 3, Pa.

***July 9-14—St. Louis, Mo.**

NATIONAL ASSOCIATION OF SANITARIANS. Annual Meeting (Chase-Park Plaza Hotel). Exec. Sec., Nicholas Pohlit, c/o Univ. of Denver, Denver 10, Colo.

***July 10-12—Boulder, Colo.**

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS. Annual Meeting (Harvest House). Gen. Chair., Sam L. Huddleston, 2395 S. Josephine St., Denver 10, Colo.

Sept. 24-27—Minneapolis, Minn.

AMERICAN PUBLIC WORKS ASSOCIATION. Annual Meeting (Municipal Auditorium). Exec. Dir., Robert D. Bugher, 1313 East 60th Street, Chicago 37, Ill.

Sept. 24-28—Poland Spring, Me.

NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Poland Spring House). Sec., Joseph C. Knox, 73 Tremont St., Boston, Mass.

Oct. 9-12—Milwaukee, Wisc.

WATER POLLUTION CONTROL FEDERATION. Annual Meeting (Milwaukee Auditorium and Schroeder Hotel). Exec. Sec., Dr. Ralph E. Fuhrman, 4435 Wisconsin Ave., Washington, D. C.

***Oct. 8-11—New York, N. Y.**

NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference (Hotel Commodore). Exec. Vice-Pres., Albert H. Hall, 1001 Connecticut Ave., N. W., Washington 6, D. C.

Trenching 7 miles of street, this Jaeger "125" Roto ran two 80 lb. breakers to line-cut and break a 7" top of asphalt over brick—averaged 1200 sq. ft. per 8 hr. day—used only 1½ gals. of fuel per hr.

Jaeger "125" Rotary speeds street work

Jaeger Rotary "600"

Instantaneous air delivery, under close and smoothly modulated control, enables the Roto 125 to maintain 100 lbs. minimum pressure under all demands up to 125 cfm. High efficiency results in slower speed operation, less fuel consumption, longer engine life than any other rotary. See your Jaeger distributor or ask for Catalog

THE JAEGER MACHINE COMPANY 505 Dublin Ave., Columbus 16, Ohio

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PADLOCKS

FOR EVERY MUNICIPAL PROTECTION NEED!

- Water Works
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- Gates
- Fuel Storage
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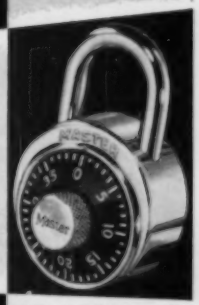
Famous Master Laminated Padlocks

Multiple steel plates . . . stronger than a solid block! Genuine brass-cylinder, pin-tumbler security. No finer padlock protection.

Stainless Steel Combination Padlocks

Double-wall construction . . . 3 number brass locking mechanism. Available with "Key-Control" — one control key opens all locks.



Special Long or Short Shackles

For switch boxes, chains, truck or freight car doors, and other uses where special shackle lengths are more desirable.

Speedy Service on Keyed-Alike and Master-Keyed Sets

Master's Service Department is geared for fast delivery . . . in emergencies, special orders are on the way within hours!

Write for FREE catalog

Master Padlocks

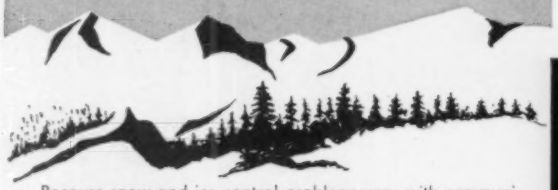
EVERY ONE AN OUTSTANDING VALUE

Master Lock Company, Milwaukee 45, Wis.

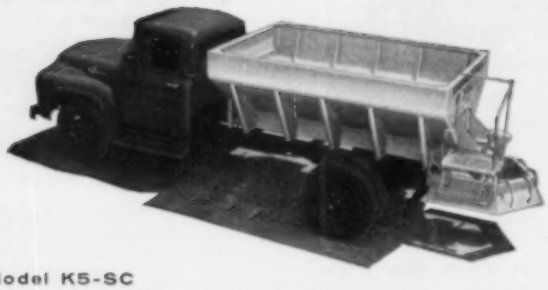
World's Largest Padlock Manufacturers

BAUGHMAN HAS THE RIGHT ICE CONTROL EQUIPMENT

**FOR ANY SIZE JOB...
FOR ANY SIZE BUDGET**

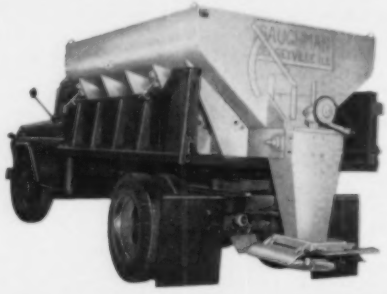


Because snow and ice control problems vary with community size and geographical location, Baughman offers a line of spreaders with a wide range in price and capacity. This greater selection means that you can be sure of getting the exact equipment for your needs—and in line with your budget.

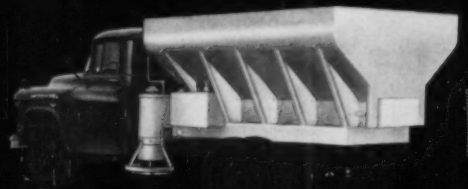


Model K5-SC
First choice of many street and highway departments.

DUMP BODY MOUNTED SPREADER
Fits into dump body, frees truck for other duties when not needed.



SPREAD-MOBILE
Exclusive Center-Spread discharges under all four wheels.



SUPER SPREADER
Attaches to rear of dump body, special Stabilizer Arm puts truck into action faster.

Model SC-52
Mechanized spreading for the lowest possible price.

SAFETY SPREADER
Pull-type, choice of PTO or auxiliary engine.

BAUGHMAN IS THE WORLD'S MAJOR MANUFACTURER OF ICE CONTROL EQUIPMENT *Better service through better engineering. Parts and service from 200 dealers.*

Additional choice dealerships are available.

BAUGHMAN MANUFACTURING CO., INC.

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MUNICIPAL AND CIVIC PUBLICATIONS

Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

Water Pollution Conference Report

CLEAN WATER, A CHALLENGE TO THE NATION. *Highlights and Recommendations of the National Conference on Water Pollution. Public Health Service Publication No. 816. Department of Health, Education, and Welfare, Public Health Service, Washington 25, D. C.* 41pp.

A summary report containing the highlights of the National Conference on Water Pollution, held in Washington, D. C., December 12-14, 1960. The report outlines the problem, the purpose of the conference, and includes excerpts of some of the papers presented. It also includes the four subcommittee reports and the recommendations of the conference.

School Fires Report

SCHOOL FIRES, AN APPROACH TO LIFE SAFETY. *Prepared by the Committee on Safety to Life from Fire in Elementary and Secondary Schools. Building Research Advisory Board, National Research Council, 2101 Constitution Ave., N.W., Washington 25, D. C. 58pp. $2.50. Quantity discounts on request.*

A report on an impartial study of school fire safety developed to assist school administrators, school board members, fire protection authorities, fire marshals, building designers and other responsible individuals in making the value judgments that are necessary. Not a technical document but a guide that can be understood by laymen as well as by experts.

Lime Soil Stabilization

RECONDITIONING AND STABILIZING SOILS BY LIME ADMIXTURES. *Highway Research Board Bulletin 262. Highway Research Board, 2101 Constitution Ave., N. W., Washington, D. C. 85 pp. $1.80.*

This book contains the research results of five studies on lime stabilization of soils as presented at the 39th Annual Meeting of the Highway Research Board. The papers are entitled "Lime Stabilization Using Preconditioned Soils," "Lime Fixation in Clayey Soils," "Improvement of Lime Stabilization of Montmorillonitic Clay Soils With Chemical Activities," "Reaction of Hydrated Lime with Pure Clay Minerals in Soil Stabilization," and "Recent Soil-Lime Research at the Massachusetts Institute of Technology."

Police Management

MUNICIPAL POLICE ADMINISTRATION — FIFTH EDITION, 1961. *International City Managers' Association, 1313 East 60th St., Chicago 37, Ill. 545pp. Clothbound. $7.50.*

Municipal Police Administration since its introduction in 1938 has been the best seller among the International City Managers' Association training manuals. A fifth edition of this popular text has just come off the press. The text has been completely revised and brought up to date. The editor of the present volume is Richard L. Holcomb, Associate Professor and Chief of the Bureau of Police Science, the State University of Iowa. Three chapters in the latest edition present substantially new or revised material. These include a revised chapter on "Juvenile Delinquency Control" and new chapters on "Police Public Relations Programs" and "Police Administration: The Future."

Municipal Auditoriums

AUDITORIUMS AND ARENAS—*Public Administration Service, Publications Division, 1313 East 60th St., Chicago, Ill. 1961. 86pp. Paperbound. $5.*

A handy text indeed for any city official trying to get practical information on municipal auditoriums. The text gives advice about administration, construction, financing, rental rates, facilities, personnel salaries. It backs this up with a series of informative tables listing many auditoriums and giving data on their operations.

Suburban Blight

BUCKHEAD—*A Report by the City of Atlanta Planning Department 1960. Atlanta Planning Department, Atlanta, Ga. 1960. 31pp.*

Atlanta, a booming city of a million people in and around its metropolitan area, is finding that growth and prosperity can damage gracious suburban areas. Buckhead is one. This neighborhood of fine homes now finds itself with an ugly shopping district, badly clogged with traffic, with no parking facilities, plastered with Coca Cola

(Continued on page 197)

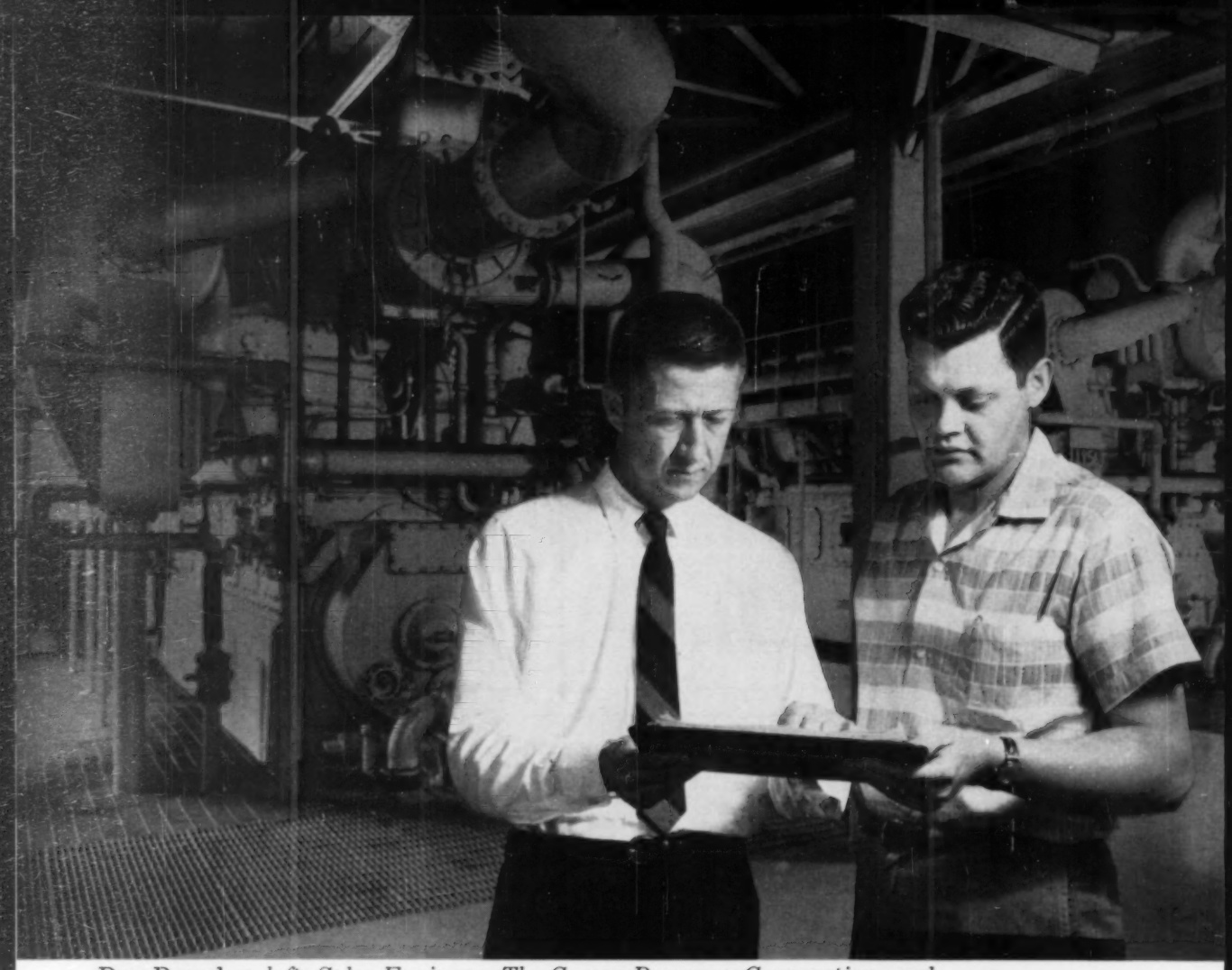
Picture of a man* carrying 19,000 gallons of water per hour...

*He's not a giant, either. Doesn't have to be. Cause the CMC 3" WONDER-*Lite centrifugal pump* he's carrying weighs only *97 pounds* . . . but will pump in excess of a whopping *19,000 gallons per hour*. Cast iron impeller and volute make it a rugged performer with long, long life. All-aluminum pump body and all-aluminum 4-cycle engine make it easiest of all to handle, carry about.

CMC WONDER-Lites are perfect for all kinds of dewatering jobs. *Available in 1½", 2" and 3" sizes. Write for* BULLETIN WLP-160 for details.

CONSTRUCTION MACHINERY COMPANY, Waterloo, Iowa

CMC WONDER-*Lite* LIGHTWEIGHT PUMPS



Don Bramley, *left, Sales Engineer, The Cooper-Bessemer Corporation, and* James Rawlings, *Superintendent of generating plant, Augusta, Kansas report...*

How Cooper-Bessemer tri-fuel engines are keeping costs down at Augusta

Two Cooper-Bessemer turbocharged LSV-12 engines, rated 2250 Kw @ 327 rpm, have been giving a good account of themselves since installation in the Augusta plant in 1956. Their tri-fuel feature provides flexibility of conventional fueling with oil or gas-diesel, and allows easy conversion to spark-ignited gas operation for the ultimate in fuel economy. The pay off of the straight gas operation is shown by these 1959 operating figures (based on gas cost of 22.675 cents/1000 cu. ft. and fuel oil at 10.484 cents/gal.) ...

One of these new engines produced over 82% of the total plant kwh and had an average fuel cost of 2.349 mills per kwh although its average load was only 63%. Lube oil consumption on this engine was 21,790 rated hp-hrs per gal.

For total plant operation, with both oil and gas, average fuel cost was 2.601 mills per kwh.

Maintenance costs on the two engines have been practically nil.

To assure peak performance for *your* operating conditions, be sure to investigate the latest in engine advancements. Check into the full line of Cooper-Bessemer engines. Call the nearest office.

BRANCH OFFICES: Grove City • New York • Washington • Gloucester Pittsburgh • Mount Vernon • Detroit • Chicago • Minneapolis • St. Louis Kansas City • Tulsa • New Orleans • Shreveport • Houston • Greggton Dallas • Odessa • Pampa • Casper • Seattle • San Francisco • Los Angeles

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Cooper-Bessemer of Canada, Ltd.... Edmonton • Calgary • Toronto Halifax • Stratford

The Rotor Tool Company... Cleveland

C-B Southern, Inc.... Houston

Cooper Bessemer

GENERAL OFFICES: MOUNT VERNON, OHIO

COMPRESSORS: RECIPROCATING AND CENTRIFUGAL
ENGINES: GAS - DIESEL - GAS-DIESEL
JET-POWERED GAS TURBINES

(Continued from page 195)

signs, with a hodge-podge network of overhead wires and scarecrow-like power and telephone poles. Moreover, it has had its little shopping district threatened by a nearby, up-to-date regional shopping center.

This report analyzes the condition and tells what to do about it. The condition has its counterparts in an uncomfortable number of spots across the nation.

Statistics

GUIDE TO U. S. GOVERNMENT STATISTICS, *Documents Index, Box* 453, *Arlington* 10, *Va.* 1961. 402*pp.* $15 (10% *discount for cash orders*).

A directory of the statistics available from the largest publisher of them all —the U. S. Government. You will have to examine it carefully to winnow out those relating to municipal governments. They are scattered throughout the entire volume and present one possible activity of a proposed Department of Urban Affairs. Much of the information is tantalizingly vague. Nevertheless, in making a study of those topics relating to local government this text certainly deserves attention.

ADMINISTRATION AND GOVERNMENT

COVINA, CALIF.—City of Covina Administrative Manual. Office of the City Administrator, City Hall, Covina, Calif. 1961. 46pp.

MILTON-FREEWATER, ORE.—Milton, Freewater to unite. City Hall, Box 108, Milton-Freewater, Ore. 1960. 16pp.

NEW YORK, N. Y.—Background Research on the Top Structure of the Government of the City of New York. New York State Commission on Governmental Operations of the City of New York. 1961. 132 pp.

TENNESSEE—How To Become A City; Procedures Under Each of Tennessee's Uniform Charters. Tennessee State Planning Commission, C-1-121 Cordell Hull Building, Nashville 3, Tenn. 1960. 16pp. 50 cents.

FINANCE AND TAXATION

CHICAGO, ILL.—1960 Assessment Administration. International Association of Assessing Officers, 1313 East 60th St., Chicago 37, Ill. 1960. 304pp. $5.

VIRGINIA—Salaries of Municipal Officials in Virginia Cities: in Virginia Towns (two reports). Virginia Municipal League, 905 Travelers Bldg., Richmond 19, Va. 1961. $1 each.

MISCELLANEOUS

GENERAL—The Story of Plastic Pipe. The Society of the Plastics Industry, Inc., 250 Park Ave., New York 17, N. Y. 1960. 26pp.

UNUSUAL ANNUAL REPORTS

ATLANTA, GA. — Construction Department Annual Report. Department of Construction, 301 City Hall, Atlanta 3, Ga. 1960. 40pp.

GREENSBORO, N. C.—A Report on Your City Government for 1959 and 1960. Greensboro City Council, City Hall, Greensboro, N. C. 1961. 18pp.

PLANNING, ZONING, HOUSING

BALTIMORE, MD.—Baltimore-Washington Interregional Study. Land Use and Transportation. Baltimore Regional Planning Council, Baltimore, Md. 1960. 130pp.

COLORADO—Regulation of House Trailers and Trailer Courts in Colorado Municipalities. Colorado Municipal League, Boulder, Colo. 1960. 45pp. $3.

HASTINGS-ON-HUDSON, N. Y.—Ridge Street Renewal Project. Raymond and May Associates, 42 Memorial Plaza, Pleasantville, N. Y. 1960. 6pp.

NORTH CAROLINA—Guidelines for Business Leaders and City Officials to a New Central Business District. Institute of Government, Box 990, Chapel Hill, N. C. 1961. 150pp. $3.

NORTH PLAINFIELD, SOMERSET COUNTY, N. J. The Master Plan. Herbert H. Smith Associates, 1241 Parkway Ave., P. O. Box 206, West Trenton, N. J. 1960. 80pp. $1.50.

REPRESENTATIVE MUNICIPAL BOND ISSUES

From March 8th to April 3rd, 1961

Date of Issue	*Locality*	*Amount in $1000*	*Purpose*	*Term Yrs. to Maturity*	*Rate of Int.*	*Yield %*
3/ 8/61	Houma, La.	1,300	Utility Systems, revenue	callable	....	3.65
3/ 8/61	St. Paul, Minn.	700	Flood Control	18⅜	3.40	....
3/ 9/61	Key West, Fla.	1,350	Public Improvement	19¼	4.85	5.05
3/13/61	Lima, Ohio	1,400	Water Works System	16½	3.75	....
3/14/61	Hempstead, N. Y.	5,130	Highway Improvement (gen. obl.)	7¼	3.20	....
3/14/61	New Britain, Conn.	595	Sewer (gen. obl.)	10	3.20	3.11
3/21/61	Lower Gwynedd Township Mun. Authority, Pa.	290	Sewer, revenue	40	4.00	3.86
3/21/61	Okaloosa Co., Fla.	1,000	Hospital	....	....	4.08
3/22/61	Toledo-Lucas County Port Authority, Ohio	3,600	Marine Improvement	10½	3.50	3.40
3/23/61	Lubbock, Texas	2,250	General Obligation	....	....	3.30
3/27/61	Boynton Beach, Fla.	370	Water, revenue	13½	4.00	4.02
3/28/61	Allegheny Co., Pa.	6,760	Commissioners' Equipment	13⅛	3.50	....
3/28/61	Detroit, Mich.	1,250	Motor Vehicle Highway	5	3.00	2.99
3/28/61	Fridley, Minn.	1,460	City Improvement	....	....	4.25
3/28/61	Port of Oakland, Calif.	1,540	Port, revenue	22½	3.70	3.75
3/28/61	Olivenhain Municipal Water Dist., No. 1, Calif.	1,400	Water Improvement	....	5.00	5.15
3/28/61	Troy, N. Y.	182	Water	7½	3.25	....
3/29/61	Dayton, Ohio	1,200	Highway Improvement (gen. obl.)	11	3.25	....
4/ 3/61	Cook Co., Ill.	2,000	Forest Preservation	6½	2.80	2.78
4/ 3/61	Homestead, Fla.	1,200	Public Improvement revenue	19¾	....	4.45

Compiled from **THE WEEKLY BOND BUYER**

NEW
ADVANCED DESIGN
ARROW

Side-Action Mobile Hydraulic Hammer

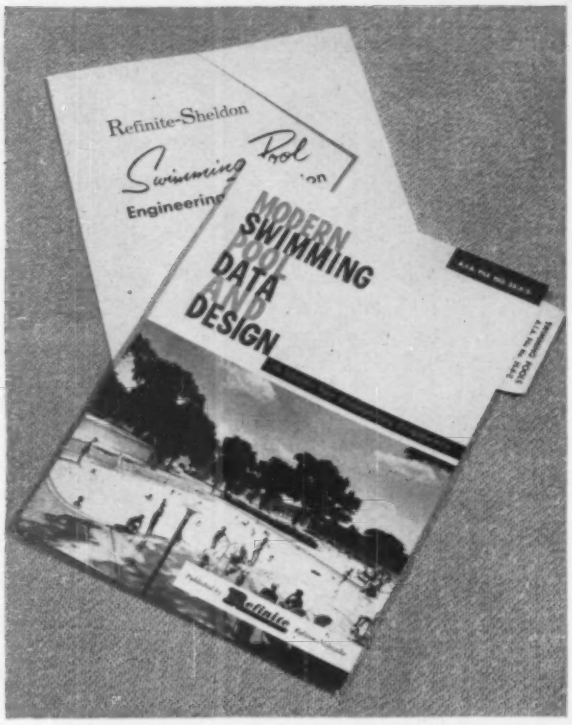
With the new ARROW you get these important advanced design features for faster, lower-cost tamping, breaking and cutting:

- **Two new side-action models—G400 and D500**
- **Choice of gasoline or diesel engine**
- **Dash-mounted creeper drive controls**
- **Increased creeper power—infinitely variable speed control**
- **Totally enclosed creeper drive**
- **New, more powerful brakes**
- **New, heavier drive axle**
- **New, heavier steering axle and wider tire tread**
- **New, built-in oil cooler**
- **12 volt electrical system**
- **New safety devices give added protection to operator and machine**
- **New, improved, adjustable seat**
- **Superior maneuverability—shorter turning radius**
- **New throttle controls**

For complete information about the new ARROW Side-Action Hammer and its money-making features, WRITE TODAY!

ARROW MANUFACTURING COMPANY
194 W. Dakota Avenue,
Denver 9, Colorado

Considering a pool? GET THE FACTS



Yes, when the record of your administration is written, will it be highlighted by a municipal swimming pool?

A Refinite-Sheldon Swimming Pool will be such a highlight of your administration as Refinite-Sheldon pools are designed and constructed for repair-free, consistent public service.

The problems and decisions you'll encounter in swimming pool installation and construction are covered in detail in our famous manual, "Modern Swimming Pool Data and Design," now in its fourth printing. It's yours for the asking and will be mailed *free* with a supplementary brochure, "Swimming Pool Engineering Information." Write for your *free* copies today.

Modern Swimming Pool Data and Design

- 89 pages
- 101 pictures and drawings
- A. I. A. File No. 32-F-2

Refinite Pool Equipment Company
P.O. Box 410
Van Nuys, California

Strength with originality

the finest Refinite Sheldon SWIMMING POOLS

NAME _____

TITLE _____

ADDRESS _____

CITY _____ STATE _____

NEW "JUMBO" SIZE

FAT 4" DIAMETER
TALL 20"
tapered wall of solid yellow rubber
stainless steel bolt
spring steel convex washer
¼-20 weld nut (welded to base)
6" cadmium plated disk

Fixatron* TRAFFIC MARKERS

A PRACTICAL FIXED LANE DELINEATOR AND/OR BARRICADE WITH ALL THE GREAT FEATURES OF THE SMALLER FIXATRON TRAFFIC MARKER. THE SAME 6" DISK BASE IS INTERCHANGEABLE WITH THE FM-2 MODEL. THIS IS AFFIXED TO THE HIGHWAY SURFACE WITH EPOXY COMPOUND. EXCLUSIVE TAPERED DESIGN ENABLES THE FIXATRON TO WITHSTAND OCCASIONAL RUNNING OVER WITH A SNAP-BACK ACTION. USE THIS GIANT "JUMBO" FIXATRON FOR BETTER VISIBILITY AND POSITIVE TRAFFIC CONTROL.

*Patents Applied For

MODEL FM-4

MODEL SHOWS OPTIONAL REFLECTORIZATION AND BLACK BANDS FOR BETTER DAY AND NIGHT VISIBILITY.

2535 Mt. Carmel Avenue,
Glenside, Pennsylvania

TOSSITS KILL MOSQUITO LARVAE

20 Times FASTER

Save Time, Labor, Money

NO SPECIES IMMUNE

100% Kill in All Breeding Places. Swamps, Canals, Catch Basins, Rain Pools, Ditches

Just toss them into infested water, capsule dissolves in minutes, spreading a lethal film in all directions on the surface. One Tossit larvicides 100 to 750 feet of water.

Clean, Safe, Easy to Handle
50 Tossits larvicide an acre of breeding ground or 50 pools in minutes

Ideal for Hard to Reach Areas
One man with Tossits does the work of five with hand equipment

Write today for prices and literature

WYCO INTERNATIONAL

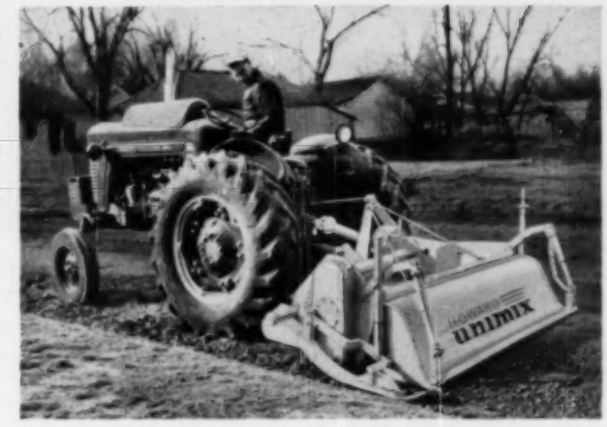
Sole Distributor for Wyco Inc.

4811 Carnegie Avenue **Cleveland 3, Ohio**

Helps Cities Speed Sewer Cleaning

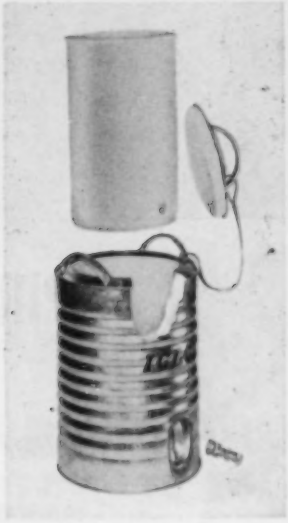
O'Brien Manufacturing Company, 5632 Northwest Highway, Chicago 46, Ill., reports that its new "1000" Power Rodder is setting speed and performance records in sewer and pipeline cleaning and threading.

The new powerized machine handles 1200 feet of 5/16" or ⅜" continuous rod and is available in truck-mounted front-tow, or rear-tow models. It is shown in operation in the photo at the right as operator handles controls. Rod guide is of the spring-type, with self-cleaning feature.



New P.T.O. Soil Blender-Pulverizer

Introduced by Howard Rotovator Co., Harvard 2, Ill., Unimix 80 works off industrial and agricultural tractors in the 55-80 horsepower class. Designed as a low-cost high production tool, it mixes base, sub-base and subgrade soils, pulverizes and reclaims old asphalt, introduces moisture for better compaction or aerating soils for production speed up. It has a full mixing width of 80 inches and can be set to provide mixing depths of from 2 to 8 inches. Tractor power for this one, at work on a city street reclamation project in Amarillo, Texas, is a Massey-Ferguson 85 butane tractor.

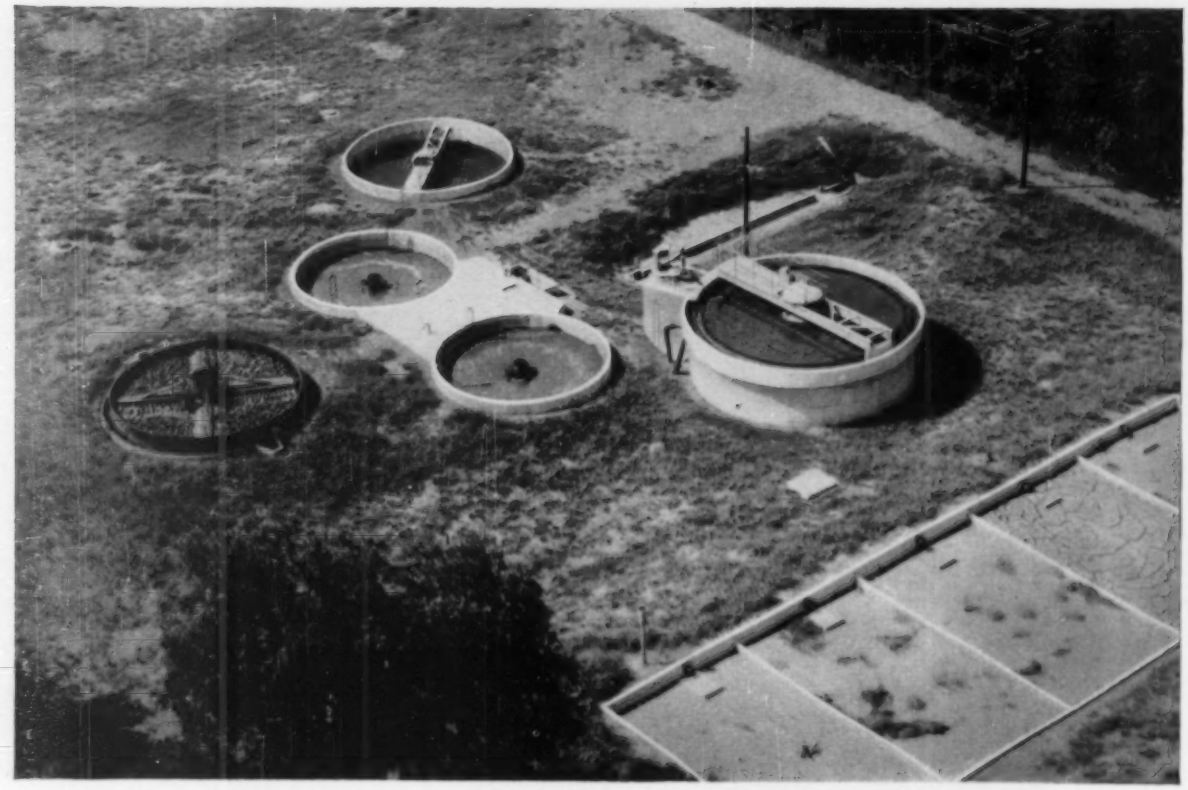


Plastic-Lined Cooler

A seamless replaceable high-density polyethylene liner, which offers better sanitation, freedom from taste and odors and high temperature resistance is a major feature of the new, lighter weight portable water coolers, introduced by Igloo Corp., P. O. Box 7185, Memphis 18, Tenn.

Dodge Police Cars

For 1961 Dodge is offering four police cars with a choice of six engines. Two- and four-door sedan models are specifically equipped for highway, general and municipal use; a public safety station wagon is also available. All Dodge police cars have unitized bodies and are given a seven-step, dip-and-spray anti-corrosion treatment. For details, write Dodge Division, Chrysler Corp., 7900 Joseph Campau, Detroit 31, Mich.



SPIROVORTEX SYSTEM FOR CHECOTAH, OKLA.

Another new development in Activated Sludge Treatment

The sewage treatment plant shown above was placed in operation last year to serve a population of 3,500 in a recreational and agricultural area. It utilizes the Dorr-Oliver SpiroVortex System, providing B.O.D. removal in excess of 90% with low overall operating costs, simple control and capability for effective handling of widely varying loads.

Units comprise a 30′ dia. Dorr Clarigester, two 24′ dia. SpiroVortex tanks providing rapid and thorough mixing by a spiraling action, one 26′ dia. Superate Filter giving highly efficient aeration and filtering, and a 24′ dia. Dorr Final Clarifier.

For information on the operation of the SpiroVortex System, write for Bulletin 7314 to Dorr-Oliver Incorporated, Stamford, Connecticut.

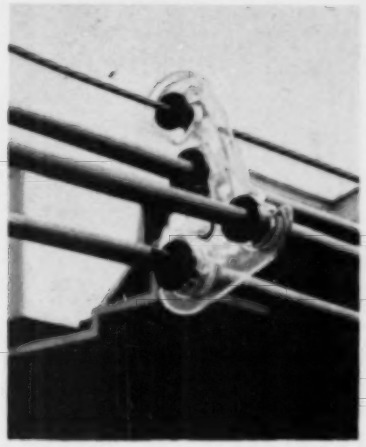
Consulting Engineers: Collins & Flood, McAlester, Okla. and Ardmore, Okla.
General Contractor: Bell Construction Company, Okmulgee, Okla.

Clarigester, SpiroVortex, Superate T.M. Reg. U.S. Pat. Off.

DORR-OLIVER

WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

New Cable Spacers



Cable spacers made of Plexiglas acrylic plastic are said to cost less, look better and be more trustworthy. This spacer cable system consists of a nonconducting support cable under which are strung three insulated current-carrying lines. All four cables are separated but held in place by Plexiglas cable clamp or spacer made by ROHM & HAAS CO., WASHINGTON SQ., PHILADELPHIA 5, PA.

Pocket-Size 2-Way Radio

A 13½-ounce two-way miniature radio called Pocketphone broadcasts and receives at distances up to one mile in the Citizens Broadcast Band. No license of any kind is required to operate it.

Transistorized pocketphone comes equipped with built-in "Power-Pak" battery that may be recharged and will last up to one year without replacement. Microphone and speaker are built in and a retractable antenna may be extended for broadcasting. These units are used in pairs or with other transceivers of the Globe Citizens Broadcaster family—the CB-100 or CB-200.

Police, firemen, will find many uses for the Pocketphone. For additional information, write GLOBE ELECTRONICS, A DIVISION OF TEXTRON ELECTRONICS, INC., 22-30 So. 34TH ST., COUNCIL BLUFFS, IA.

Emergency Lighting Equipment

Lightguard Model D is a low-cost emergency lighting unit that provides protection against hazards of power failure. It is fully automatic, operating instantaneously if normal power fails, shutting itself off when power is restored. Power source is a 9-volt dry-cell battery.

Model D gives up to 3¼ hours of

(Continued on page 203)

VACUUMIZED SWEEPING keeps streets spotless in beautiful Naples, Florida

Tennant picks up dirt that non-vacuum sweepers miss

FOR OTHER AREAS, such as municipal garages, parking ramps and sidewalks, this compact new 53"-path Tennant "85" does a low cost, ultra-clean sweeping job. Has powerful hydraulic drive.

Vacuumized sweeping *makes the difference* . . . the extra cleanliness that makes your citizens proud of their town.

Any TENNANT Sweeper, regardless of its size, provides this near-perfect cleanliness. Use the husky "100" (7½ ft. path) for smooth, modern streets and alleys . . . or the compact new "85" for walks and areas where pushbrooms are now used.

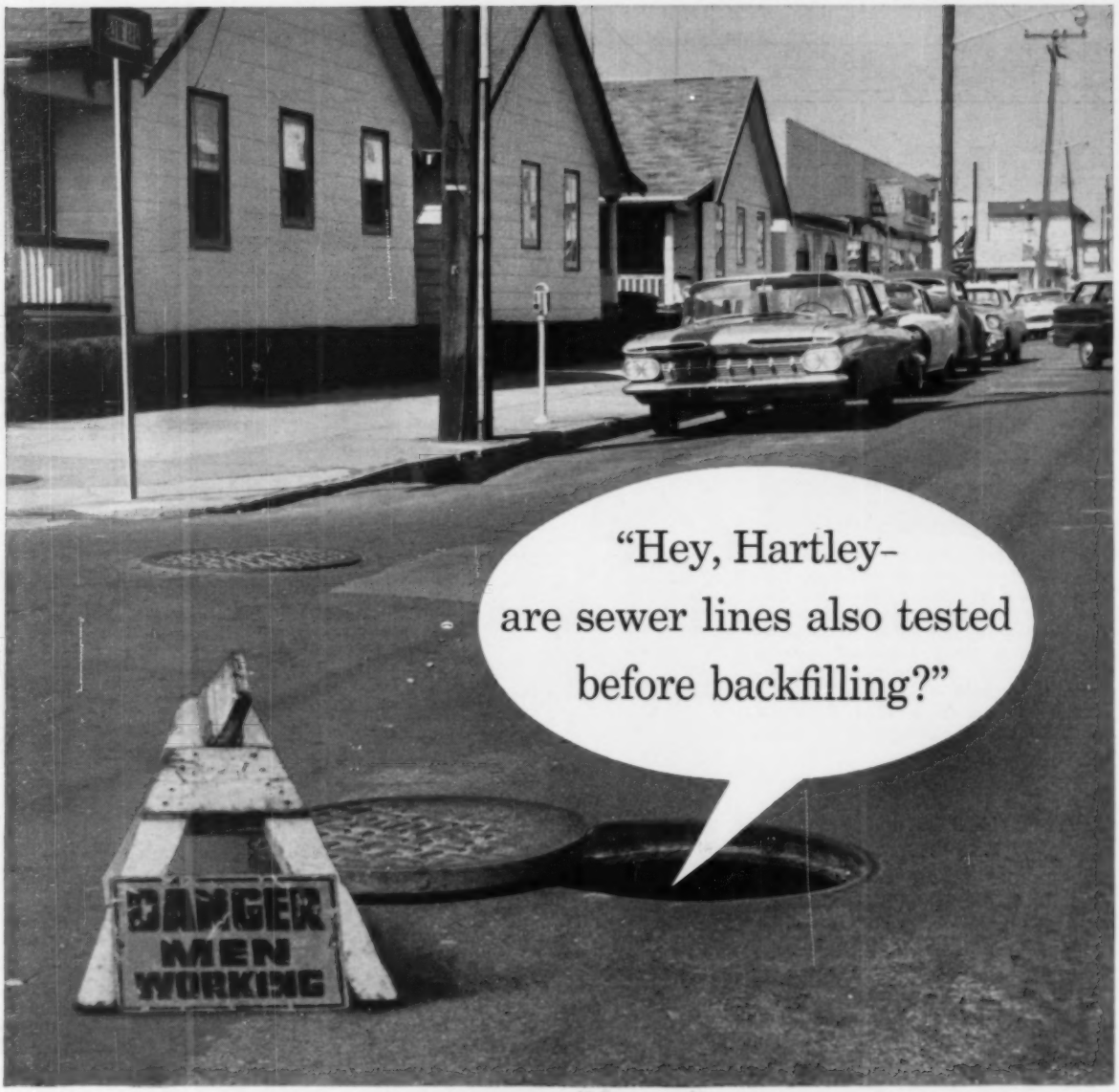
Powerful broom-and-vacuum systems pick up finest dust and dirt, as well as bulky debris. Huge filters provide near 100% dust control, so there's no need for water spray at any time.

Write today *for illustrated bulletins on modern Vacuumized Sweeping.* G. H. Tennant Co., 751E N. Lilac Drive, Minneapolis 22, Minn.

TENNANT

VACUUMIZED* SWEEPERS

**Tennant originated Vacuum-Sweeping Systems*



Yes! More and more specifications are calling for leakage (exfiltration) tests. Therefore, contractors have to be prepared for them.

When a line has to be tested before backfilling, contractors will usually look to Transite®, *the white sewer pipe.* You see, many have found it economically unsound to challenge a leakage "spec" with any other joint than a Ring-Tite® one. And, no wonder! This exclusive Transite joint is precision-machined instead of molded.

There have been times, and all too frequently, when materials other than Transite have virtually ruined contractors' job costs because of the time it has taken to condition a non-Transite line to eventually pass a leakage test. Incidentally, Johns-Manville is so sure of their Ring-Tite Joint, they don't consider a specification of 100 gallons/inch diameter/mile/day a tough one to meet at all.

Johns-Manville's movie–"Pipelines To Health"–tells why a Transite line is a sound investment today and for the future. It's available along with facts and data to support their claim that "Transite is designed with sewer service in mind." Write to Johns-Manville, Box 14, AC-5, New York 16, N. Y. In Canada: Port Credit, Ont. Cable address: Jonnmanvil.

JOHNS-MANVILLE
TRANSITE PIPE

Test water goes in . . . stays in!

(Continued from page 201)

emergency lighting with one lamp and provides 1½ hours of protection with two lamps. It is equipped with one 25-watt PAR 36 sealed beam lamp, adjustable both horizontally and vertically, that can be mounted on the case of the self-contained unit or connected remotely to light adjacent areas. A heavy-duty relay with silver contact connects the lamps to the battery when 115-volt a.c. power fails, and disconnects when power is restored.

For additional information, write EXIDE INDUSTRIAL MARKETING DIVISION, THE ELECTRIC STORAGE BATTERY CO., RISING SUN AND ADAMS AVES., PHILADELPHIA 20, PA.

New Engine Option for Tractor Dozer

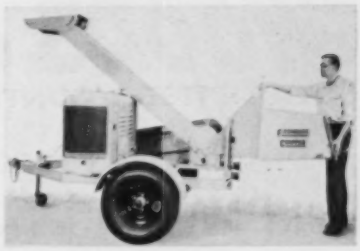
A 290-hp diesel engine is now available as optional equipment on the Michigan Model 280 tractor dozer, according to the CONSTRUCTION MACHINERY DIVISION of CLARK EQUIPMENT CO., PIPESTONE PLANT, BENTON HARBOR, MICH. It is the General Motors Model 8V-71 with a two-stroke engine cycle, unit injector fuel system, and maximum parts interchangeability, and is designed to increase the tractor dozer's flexibility and production. The other power plant available for the Model 280 is the 262-hp Cummins NTO diesel.

Safer Brush Control

Improved safety and economy in disposing of tree trimmings results from two new accessories on Fitchburg Chippers—a new safety stop switch and a solenoid switch for idling the motor.

FITCHBURG ENGINEERING CORP., FITCHBURG, MASS., states that one flip of the safety stop switch, located at the top of the feed apron, stops

(Continued on page 205)



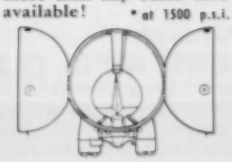
Go Hydraulic
SEAL-PRESS
has the 'seal of approval'

HYDRAULIC OPERATION · 85,000 LBS. PRESSURE · 12 MO. WARRANTY
ONLY SEAL-PRESS OFFERS

SEAL-PRESS, INC.
Rt. 10, Box 208, San Antonio, Texas
Write for brochure – full specifications.

1 HYDRAULIC OPERATION
Since 1954 SEAL-PRESS refuse units have been the choice of cities throughout the U. S. and abroad. Now . . . for '61 . . . new *hydraulic* double acting cylinder drives packer and ejection plate smoother . . . more pressure!

2 85,000 LBS. PRESSURE*
Here's the power . . . the performance, the packing pressure and rugged construction needed in a profitable operation for one truck or a fleet. 85,000 lbs. of pressure — more than any other unit available! * at 1500 p.s.i.

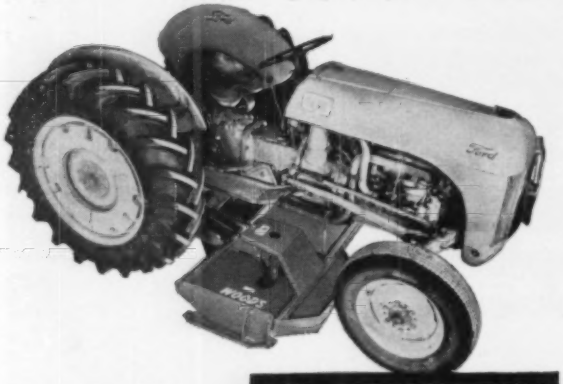


3 12 MONTHS WARRANTY
SEAL-PRESS, first in many design features, is now first again to offer a full year warranty. International reputation of SEAL-PRESS is backed up by this signed 12 months warranty.

CUT MOWING COST

WOODS Model 62
CENTER MOUNTED

Fits Ford, Ferguson and IHC 240 Tractors



Double Blades Cut full 5 ft swath Mows 3 acres per hour

For the first time, you can buy a center mounted rotary for your utility tractor!

Patent pending Wood's Duo-V-belt drive, with a C-belt to each blade, provides plenty of power for the toughest shredding job — while protecting the mower and tractor against sudden shock loads!

With the "free floating" mounted mower extending beyond the right wheel — you provide visibility and maneuverability for those tough mowing jobs *no other rotary can offer the utility tractor owner.*

With access holes in the deck plate, the quick change free swinging blades can be changed in 5 minutes without getting under the mower. Hydraulic controlled cutting height provides plenty of clearance for maneuvering on curbs, gutters and sidewalks.

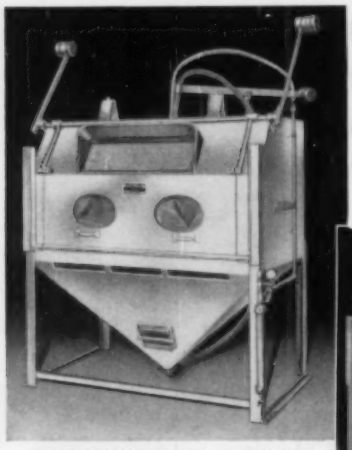
Farmers, municipalities, airports, golf courses, state highway departments, parks . . . this is the center mounted rotary they are all looking for!

Write for full details

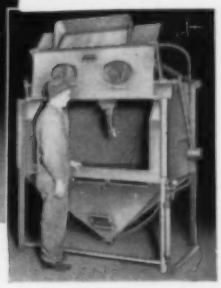
WOOD BROTHERS MFG. CO.
20105 South 4th Street Oregon, Illinois

SPECIALISTS IN THE MANUFACTURING OF TRACTOR POWERED ROTARY MOWER SHREDDERS

BLAST CLEAN WATER METERS



For Speed and Thoroughness!



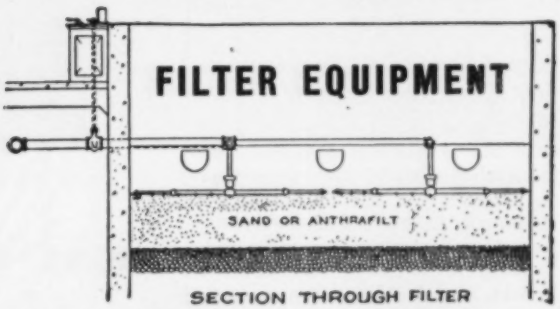
RUEMELIN BLAST CABINETS effectively clean water meters, valves and pipe fittings, removing all foreign matter very rapidly. Built in several sizes. Units available with rotary tables.

Write for Bulletin 32-C and price data.

RUEMELIN MANUFACTURING CO.
3902 N. PALMER ST. • MILWAUKEE 12, WIS., U. S. A.
Manufacturers and Engineers SAND BLAST AND DUST COLLECTING EQUIPMENT, WELDING FUME COLLECTORS

PALMER

FILTER EQUIPMENT



SECTION THROUGH FILTER

Filter Bed Agitator Advantages

- Requires an average of 40% less wash water
- Eliminates mud balls
- Prevents cracking and shrinking of the beds
- Produces "new" sand after short period of normal operation
- Enables you to increase filter runs up to 50%

Anthrafilt Advantages

- Doubles the length of filter run attainable with sand and quartz media
- Requires one-half as much waste water
- Filters are out of service less because of the shorter wash cycle
- Coating, caking or balling with mud, lime, iron or manganese reduced to the minimum

Write for Circular

PALMER FILTER EQUIPMENT CO.
P. O. BOX 1655, ERIE, PA.

(Continued from page 203)

the chipper within seconds. The solenoid switch gives immediate control of the motor without necessitating a move from the feeding position. It will idle the motor between actual feeding operations, thus decreasing gasoline consumption, reducing engine wear, and making quieter operation possible.

A-W's New Roller

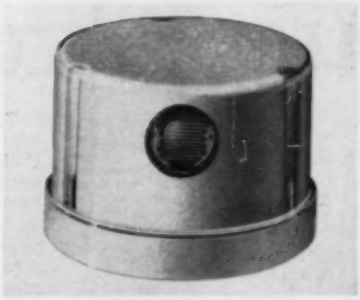
This 9-wheel pneumatic-tired roller has been designed for capacity of 4 to 11 tons, and is capable of maximum compactive effort of more than 90 pounds per square inch, with optional high-inflation tires.

The PR-11 has Warner 4-speed transmission with full power shuttle reverse and torque converter; automotive-type power booster steering; all-wheel oscillation to maintain uniform compression; six-ply tires and 152-gallon sprinkler water tank. For additional information, write Austin-Western Division of Baldwin-Lima-Hamilton Corp., Aurora, Ill.

Baltimore Goes Lark

Chief Inspector Oscar Lusby (left) of the Baltimore City Police accepts delivery of 75 Studebaker Larks. Presenting the cars is D. M. Michaelson, president of Michaelson Motors, Studebaker-Packard dealer. Most of the cars are Police Marshalls.

Improved Tubeless Street Light Control



American Electric's new Model 8000-1 cadmium cell photo-electric street light control features a molded acrylic cover for improved appearance and molded base mounting for high impulse level. It fits both the old (large diameter) and new NEMA Standard lock-type heads.

Circuitry and components are the

(Continued on page 207)

POWERFUL, NEW
M&M BRUSH CHIPPER
handles limbs up to 8" diameter

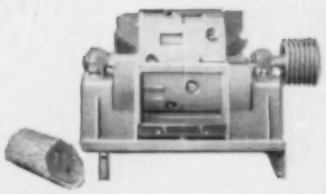
107

AMERICA'S
NO. 1 BRUSH CHIPPER

M & M's exclusive design of small, staggered and tapered cutting knives in the large cylinder allows chips to be shaved off . . . not cut off; makes it possible for this new chipper to handle 8 inch logs without creating impact shock responsible for damaging bearing and clutch wear.

Unique twin-bar design allows the chipper to produce either large or small chips . . . a profit-making feature, since small chips have many uses.

The heavy-duty M & M chipper has a built-in blower to regulate direction and distance of chips. Large, heavy rotating cylinder in between heavy-duty roller bearings eliminates overhanging flywheel. All-welded, special alloy steel construction



of simple design assures trouble-free operation and low maintenance costs.

With the addition of this heavy-duty model, Mitts & Merrill manufactures a complete line of chippers in sizes and capacities for any brush disposal requirement. Write today for complete information.

LARGE AND SMALL M&M HANDLES THEM ALL!

MITTS & MERRILL • 1003 So. Water Street • SAGINAW, MICHIGAN

BUILDERS OF WORK-SAVING, MONEY-SAVING AND MATERIAL RECLAIMING MACHINERY SINCE 1854

"Litter-Getter"
LEAF COLLECTORS

TARCO "Litter-Getter" Leaf and Litter Collectors are **powerful vacuum units** used **for rapid pick up of Leaves** or **Litter** such as newspapers, paper cups and wrappings, tin cans, pop bottles, etc.

"Litter-Getters" are equipped with: **rugged, electric starting engines**; heavily reinforced and perfectly **balanced steel suction impellers**; **replaceable steel liners** for suction housing and exhaust duct. Material deposited in truck mounted box.

MODELS: Mod. **L. G.**, above, **trailer mounted**—quickly changed from right to left side pick up. Mod. **L. G. S. skid mounted** for mounting in dump body ahead of leaf receiver. Mod. **L. K.** "**Leaf King**" **largest** and **most powerful** "**Litter-Getter**" with wide, semi-rigid suction shroud for heavier collection work.

See your TARCO Dealer or write us for details.

TARRANT MFG. CO.

23 Jumel Place, Saratoga Springs, N. Y.

HYDRAUGER—

- *ELIMINATES TRENCHING*
- *REDUCES COSTS UP TO 90%*
- *BORE—UP TO 250 FT. 2 INCH TO 24 INCH*
- *NO FUMES OR SHOCKS*

Write for booklet—

HYDRAUGER CORP., Ltd., 681 Market St., San Fran. 5, Calif.

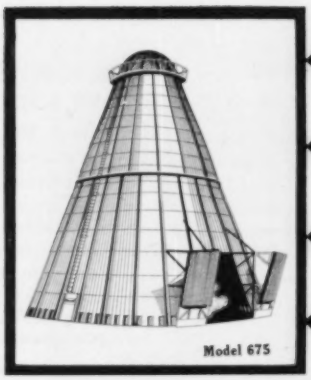
Please send without obligation, to me, the HYDRAUGER BOOKLET which shows relative costs and speeds of BORING as well as specifications of various Hydrauger models.

NAME_____

ADDRESS_____

CITY_____

STATE_____



- Burns up to 7 Tons per hour when burning continuously
- May be conveyor fed for greater capacity.
- Huge doors admit dump truck or bulldozer
- Easily erected on site by unskilled workmen.

INDUSTRIAL

BURN-O-MATIC
REFUSE BURNER

Manufactured in eleven different sizes . . . engineered for maximum burning efficiency. Burn-O-Matic is the ideal way to burn combustible trash and refuse. Big capacity . . . small cost.

YES *AIR POLLUTION CONTROL EQUIPMENT AVAILABLE*

P. O. BOX 5182 MEMPHIS 12, TENN.

DESIGNED, ENGINEERED AND MANUFACTURED BY

INDUSTRIAL BLOW PIPE COMPANY

CUTS WEEDS • MOWS LAWNS • MULCHES LEAVES

The rugged ROOF *VP* MOWER

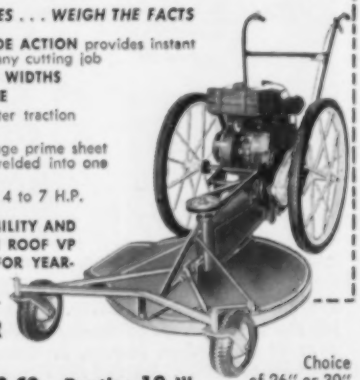
Nearest thing to power-steering in a heavy-duty mower!

The new Roof Swivel-Glide mower is engineered to handle all heavy duty mowing requirements from heavy weed and brush cutting to spacious lawn areas.

COMPARE THE FEATURES . . . WEIGH THE FACTS

- **VARIABLE PITCH BLADE ACTION** provides instant blade adjustment for any cutting job
- **26" OR 30" CUTTING WIDTHS**
- **OIL BATH GEAR DRIVE**
- **26" WHEELS** for greater traction and maneuverability
- **CHASSIS** is heavy gauge prime sheet steel reinforced and welded into one rugged unit
- **CHOICE OF ENGINES** 4 to 7 H.P.

VERSATILITY, MANEUVERABILITY AND RUGGED, LONG LIFE MAKE ROOF VP MOWERS YOUR BEST BET FOR YEAR-ROUND MAINTENANCE



Choice of 26" or 30" Cutting Widths

For FREE FACT FOLDER write:

ROOF MANUFACTURING CO., Pontiac 19, Ill.

(Continued from page 205) Turn-on is 1 foot-candle (adjustable); turn-off, 3 to 4 foot-candles. A special arrestor is designed to withstand repeated surges without loss of protection to components. Contact rating is 120-volt, 1000-watt incandescent or 1200 VA reactive. Operating characteristics meet presently proposed EEI-NEMA Standards. For full details, write American Electric Manufacturing Corp., 3271 Chelsea, Memphis 12, Tenn.

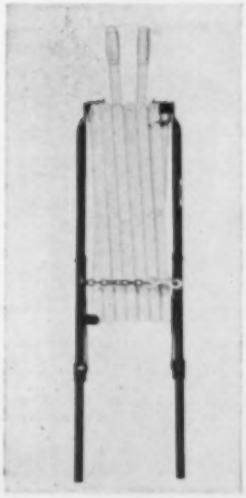
Striping Its Way Cross Country

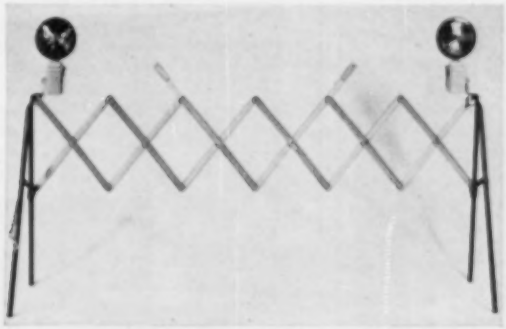
The M-B Linestriping Caravan is making its way across the country demonstrating advanced traffic line striping equipment to municipal street, state and highway officials. It is comprised of a heavy-duty truck-mounted marker equipped with a front- or rear-mounted carriage for center-line striping and a right hand mounted outrigger assembly specifically designed for edge-line striping; the large-capacity self-propelled Linemaster; the general purpose, hand-propelled Model 3-10; and the new spike-shaped M-B Line-O-Guard. Featured are specially designed M-B mechanical and electric timing devices for use in accurate striping of intermittent lines of predetermined cycles and M-B rotary-type bead dispensers for use in accurately applying reflective beads. Accompanying the Caravan are an M-B factory operator, district representative and M-B distributor from each territory.

Compact, Steel Barricade

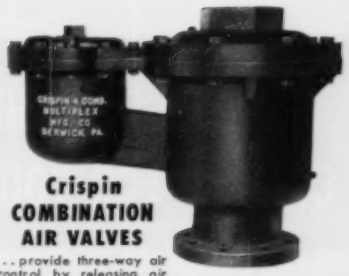
Guard-Gate warns against hazards, functions as a safety barricade. Its rigid steel legs extend easily into open position—4, 6, or 8-foot lengths. Reflectorized, traffic-yellow cross bars assure maximum nighttime visibility for these 3-foot high units. Each Guard-Gate comes complete with basic mountings for flasher

(Continued on page 209)





Rubber-grip handles added to the standard Guard-Gate safety barricade provide ease in opening, closing and carrying. A snap-lock chain latch makes the barricade secure when in collapsed or closed position. Guard-Gate weighs only 24 pounds, less flasher lights.



Crispin COMBINATION AIR VALVES

. . . provide three-way air control by releasing air during filling and while under pressure and admitting air for vacuum breaking.

Crispin

Air Valves

work right

year after year!

Crispin MIDGET AIR VALVES

. . . are ideal for venting hot water systems, particularly useful in panel type installations — increase BTU output of system.

Crispin DEEP WELL AIR VALVES

. . . on pumping installations provide controlled air release thru an adjustable screw top—eliminate dangerous float flutter.

Write, wire or phone for complete information and your free copy of the Crispin Air Control Valve catalog.

• AIR CONTROL VALVES FOR OVER 50 YEARS •

multiplex

MANUFACTURING COMPANY

BERWICK, PENNSYLVANIA

Dept. E

HOW TO BUY THE BEST CHIPPER FOR YOUR NEEDS

1 **Ask for a Free Demonstration.** Your dealer will gladly demonstrate the new 1961 Asplundh . . . will even run it side-by-side with any other chipper to let you compare machines and results.

2 **Look for the features that give you these benefits.**

Chipping Speed. By actual test Asplundh is the fastest chipper made—which your dealer will gladly prove.

Low maintenance cost. The Asplundh has fewer moving parts. This means lower maintenance, less down time.

Safety to workers and passers-by. Asplundh blades are tapered and wedged—cannot fly out.

Ease of operation. Unskilled labor can operate the Asplundh with ease—change blades quickly.

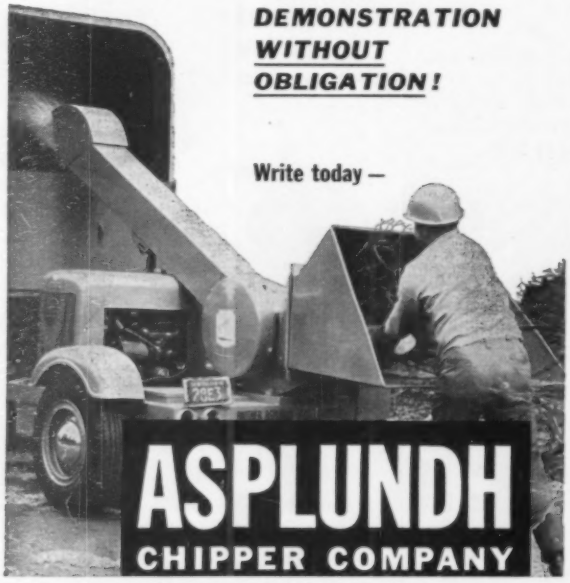
Highway safety. Asplundh's underslung engine and axle place the center of gravity low for safe, true highway tracking.

Big capacity. Asplundh chips all you can feed it—limbs up to 6" diameter—hour after hour, day after day.

3 See for yourself why Asplundh outsells all other makes. Write for new brochure of testimonials from satisfied users.

ASK FOR A DEMONSTRATION WITHOUT OBLIGATION!

Write today —



ASPLUNDH CHIPPER COMPANY

Hamilton St., Chalfont, Pa.

Proven in service by the world's largest tree company

BUILT TO "take it"

WAUSAU PRODUCTS

The WORLD'S MOST COMPLETE LINE of SNOW REMOVAL EQUIPMENT!

NOW - A WAUSAU ROTARY SNOW THROW and Loader for All Makes of Front Loaders

- Wausau Snow Plows - Vee and Blade
- Wausau Snow Wings
- Wausau Underbody Truck-grader Ice Blade
- Wausau EXPRESSWAY
- Wausau Material Spreaders
- Write for full details on all Wausau Products . . . Literature available on every item.

For states, cities, counties, parks, cemeteries, airports, industrial plants, material yards, snow removal contractors . . . thoroughly proven in both performance and reliability, low initial investment . . . low cost operation and upkeep . . . loads approximately 15 cubic yards of windrowed snow per minute.

WAUSAU IRON WORKS WAUSAU, WISCONSIN

Pioneer Snow Plow Builders

PRESTIGE PRODUCTS
Bennett Lit
Since 1906

BENNETT

Self-closing waste receptacle with the . . .

POLYETHYLENE PLASTIC INNER CONTAINER

MODEL 34

A practical, serviceable inner container of tough, thick, polyethylene plastic that cannot break, peel, crack, discolor, or mar any kind of flooring. Non-corroding and not affected by acids, syrups, or condiments, it can be washed sparkling clean in seconds. Light in weight for easy handling . . . has capacity of 11 gallons, yet weighs only 2½ lbs. The receptacle stands only 30" high, 15" in diameter, to fit in locations where compact size is important. Write for literature.

BENNETT MANUFACTURING CO., INC.

DEPT. 67 **ALDEN, NEW YORK**

(Continued from page 207)

warning lights, flares, signs or extra large flag shafts (¾"). Each is equipped with two red warning flags. For further information, write WEST SIDE IRON WORKS, INC., 327 FRONT AVE. N. W., DEPT. MJ, GRAND RAPIDS, MICH.

Purchases Lehman Sewer Pipe Company

American Vitrified Products Co., Cleveland, Ohio, one of the nation's largest producers of clay and concrete pipe, has acquired as a wholly-owned subsidiary the Lehman Sewer Pipe Co. of New York City, major clay pipe distributing company. In announcing the purchase, Jack L. Brown, vice president and general sales manager for American Vitrified, stated that Lehman's chief role would be the sale and distribution of pipe produced at the parent company's new Somerville, N. J. plant.

American Vitrified has also added six new men to cover the territory in its Eastern Marketing Division.

Jack Brown

New Shape in Mechanical Sweeper Filaments

Borrowing a time-proven concept from the structural engineer, Du-Pont has developed a new I-beam nylon monofilament for mechanical street sweeper brooms, which it calls "Herox."

Du Pont reports "Herox" I-beam filament to be the stiffest of all plastic broom-filling materials, yet able to perform efficiently in both light and heavy sweeping. The I-beam cross section is said to eliminate the likelihood of premature wear so often suffered by less stiff filaments because of excessive pressure applied by sweeper operators seeking to sweep up heavy debris. "Herox" I-beam resists most chemicals, petroleum products and alkalies. Its flex life and bend recovery are said to be excellent.

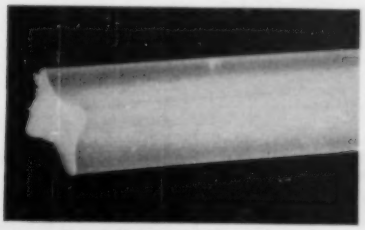
A "Herox" I-beam nylon filament street sweeper broom is put to a "clean sweep" test at Du Pont's proving grounds. Below, it is shown set at a 6-inch pattern and operating at 217 rpm on a concrete block (equal to 5 mph in 3rd gear) while undergoing an abrasion wear rate test.

Since approximately 20% fewer filaments are needed to fill a broom with "Herox" I-beam than with rounded plastic materials, there is a savings of about 30 to 40 pounds of filament for every broom used.

In addition to its use by city street sweeping departments, Du Pont expects state highway departments to make use of the new "Herox" I-beam filaments in connection with smoothing of surfaces before putting down ballast, the distribution of grout and sweeping of shoulders.

"Herox" I-beam filaments are

(Continued on page 211)

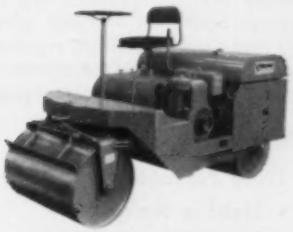


An enlarged view of the I-beam structure of "Herox" nylon filament.

ROLCOR

AMERICA'S LEADING
"COMPACT" ROLLERS

✔"Job Sized" ✔Self-Propelled
✔Top Quality Construction



VIBRAPAC

A two-ton vibrating roller producing high density compaction equal to static rollers weighing 10 tons. Designed specifically for asphalt and soil compaction without surface corrugation. Adaptable as a static roller, too. Outstanding for high density compaction of large or small areas.

STA-PAC

A two-ton static roller with size and maneuverability ideal for rolling jobs of all kinds. Equipped with front and rear sprinkler bars. A fast, low cost, economical roller.

ROLLPAC

The top selling one-ton roller with contractors, cities, institutions and landscapers. It's preferred for its quality, rugged construction and low maintenance. You won't outgrow the usefulness of Rollpac.

For Full Information Write:

ROSCO MANUFACTURING CO.
Rolcor Division
3118 SNELLING AVE.
MINNEAPOLIS 6, MINN.

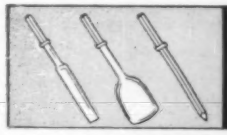
GIVE 'EM LINDSAY COMPACT AIR

THE test of 40 years progress in building direct drive Radial Type air-cooled, engine driven air compressors assures you of durability. Lindsay Air Compressors are built for day-in, day-out operation — year after year. That's why many public utilities, municipalities and contractors throughout the country have fleets of Lindsay radial type air compressors.

LINDSAYS Are . . .

- **Truly Portable**
- **Light in Weight**
- **Low in Original Costs**
- **Low in Operating Costs**
- **Built for Continuous Operation, Every Day**

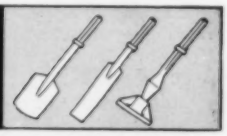
Operating a heavy 90-lb. concrete breaker is a one-man operation when teamed with the Lindsay "Model 80" radial type air compressor.



LINDSAY PORTABLE Give 'Em Air AIR COMPRESSOR

P. K. LINDSAY CO., INC.

EVERETT, MASS. • DEERFIELD, N. H.



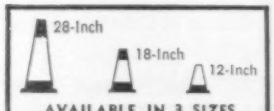
HERE is the answer to EMERGENCY BARRICADES

Lightweight, Easily-Adaptable

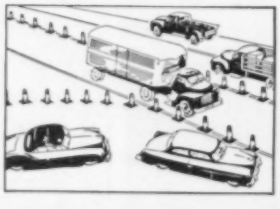
SAFE-T-CONE TRAFFIC GUIDES

SAFE-T-CONES are proven and accepted by Federal, State and Municipal traffic authorities in hundreds of major cities ...for traffic channeling, utility repairs, line painting and emergency blockades.

SAFE-T-CONES are easily adaptable to all situations at a moment's notice. Special construction allows them to be "stacked" in small space.



AVAILABLE IN 3 SIZES



Solid-Color PVC* POLY-CONES—18-inch and 28-inch sizes. Outlasts ordinary cones without upkeep!

*Poly-Vinyl Chloride

For full information write

RADIATOR SPECIALTY CO., CHARLOTTE, N. C.

You'll Never SAVE MONEY on Cheap Substitutes For . . .

. . . SUPER DeLAVAUD

APCO CAST IRON PIPE

Centrifugally cast APCO Cast Iron pipe is made to last 100 years or longer. It's cheaper by far in final costs than any non-ferrous pipe your city can buy. With the fast assembly ALTITE® JOINT, it's easy, simple and inexpensive to install. Available from adequate stocks in sizes 3" through 24" in modern long lengths, ALTITE, bell-and-spigot, and mechanical joint.

Write for your copy of Catalog No. 54

ALABAMA PIPE COMPANY

A Division of Woodward Iron Company

Phone AD 6-7601, ANNISTON, ALABAMA

Sales Offices

Chicago: 122 S. Michigan Avenue
New York: 350 Fifth Avenue
Kansas City: Suite 950, 1006 Grand Ave.
Detroit: 18505 W. Eight Mile Road
South Gate, Calif: 5335 Southern Ave.

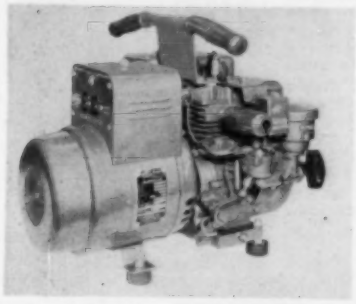
(Continued from page 209)

being offered to broom manufacturers, as well as to city street departments, paving contractors and state highway departments at $2 per pound in 1,000-pound shipments.

For additional information on this latest advance in heavy filament research, write E. I. Du Pont de Nemours & Company, Product Information Service, Public Relations Dept., Wilmington, Del.

Portable Engine Generator

The new Winco SUPER MITE is recommended for powering portable electric tools, as well as for lights. It is said to offer a new Safe-guarded AUTOMATIC CONSERV-er idling control that saves up to 60% in fuel cost. A new THERMA-TROL reportedly gives superior AUTOMATIC CONSERV-er controlled engine operation in a wide range of ambient temperatures, by maintaining full engine speed until the engine temperature permits smooth idling.



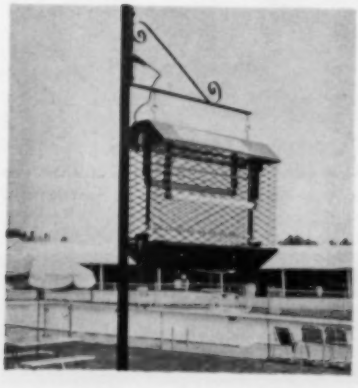
SUPER MITE provides 1500-watts of intermittant AC power. With carrying case it weighs 82 pounds and is powered by a Briggs & Stratton engine. For complete information and specifications, write Wincharger Corp., Sioux City 2, Ia.

Esco's New Utility Barricade

Model EFS 4000 is a compact, rugged barricade designed for maximum visibility and for keeping field damage to a minimum. Features include heavy-duty angle iron legs and cross bar; barricade panel of 12-inch by 40-inch steel; 40-inch leg length. The new Esco unit takes one or two lights on theft-proof light mounting. It is finished with baked-on, high-grade implement enamel. Standard equipment also includes a light mounting adapter and a customer name panel of marine plywood (6 inches by 40 inches.)

For complete information, write Electronic Specialites Co., Batavia, Ill.

Electrocutes Insect Pests



Wherever people congregate and insects are a problem, the Insect-Electrocutor can serve its purpose. This unit is designed to attract and destroy flying insects through the use of black light and a grid of charges rods, harmless to humans and pets. Operation is entirely automatic; cost of operation, low. Sno-Master Mfg. Co., 124 Hopkins Place, Baltimore, Md., which will supply full details, reports that strategically placed, the Insect-Electrocutor has been known to clear over an acre of undesirable flying insects.

(Continued on page 213)

NF
name's
NEENAH
and
the
products
are
GRAY and
DUCTILE
IRON
CONSTRUCTION
CASTINGS
of finest
QUALITY
FINISH
UNIFORMITY

Delivery is prompt: we have huge on-hand stocks of standard items

PLUS

15,000 patterns

PLUS

a daily production capacity of 500 tons in our two plants.

Name's Neenah . . . if we make it it's a casting . . . and the best.

New 168-page catalog shows our line. It's sent promptly when requested.

NEENAH FOUNDRY COMPANY
NEENAH • WISCONSIN
Chicago Office
5445 North Neva Ave., Chicago 31, Ill.

ESSICK
VIBRATING COMPACTORS

ESSICK VR-28-W PATCHING ASPHALT IN GARDEN GROVE, CALIF.

"MAINTENANCE PRODUCTION TRIPLED... ...COSTS DECREASED 80%"

SEWARD H. DART, STREET MAINTENANCE SUPERINTENDENT-SHOWN WATCHING HIS 28" ESSICK VIBRATING COMPACTOR IN ACTION—STATES:

"Irrigation water tracked into the intersections and gutter aprons in Garden Grove, constantly eroded the asphalt and made maintenance a full time problem. As a result, our gutter and intersection patching required frequent reworking, and our costs were high.

"After a demonstration of the 28" Essick Vibrating Compactor, we knew we had found the answer. It was self-propelled, hooked on the tail gate of a dump truck, and produced compaction equivalent to an 8 ton roller on asphalt. Its high frequency vibration compacts an asphalt patch that is completely dense—that can be opened immediately to traffic without any marking or damage to the asphalt.

"Now with our patching unit consisting of the 1½ ton dump truck, an Essick 120 gallon Truck Mounted Emulsion Unit, a propane torch, and the Essick VR-28-W Vibrating Compactor, the patch life has been tremendously extended, our maintenance production has tripled, and our costs have decreased 80%.

"The Essick VR-28 really solved the patch problem for us."

SELF PROPELLED — MANEUVERABLE — PORTABLE

Essick High Frequency Vibrating Compactors are constantly exceeding the densities and specifications performed by other compaction methods, while creating new standards of compaction for all types of fills, sub base, base materials, and asphalt.

CALL YOUR ESSICK DEALER FOR A DEMONSTRATION

9 Models of Vibrating Compactors from 13" to 72" Widths

Also 14 models of Tandem Rollers from ½ to 14 Tons

ESSICK MANUFACTURING COMPANY

1950 Santa Fe Avenue, Los Angeles 21, California
850 Woodruff Lane, Elizabeth, New Jersey

Affiliated with THE T. L. SMITH COMPANY. Milwaukee, Wisconsin

GOJER, INC. Announces Its

"STOP WASTE PROGRAM"

CARELESS WASH-UP PROCEDURES ARE COSTING YOU MONEY!

A pair of dirty hands with free access to an open can of soap may well be the reason your company handcleaning bill is such a costly item. Provide an effective way of controlling the amount of soap being wasted by your employees, and you'll prevent the greatest part of your handcleaning dollar from being washed down the drain.

GO-JO'S HEAVY DUTY DISPENSER CONTROLS WASH-UPS... SAVES YOU MONEY!

Designed to eliminate waste, the Go-Jo Heavy Duty Dispenser delivers just the right amount of Go-Jo to get even the grimiest hands spotlessly clean. Go-Jo Creme Hand Cleaner is a concentrated formula containing GT-7 for dermatitis protection, plus soothing emollients to prevent chapping. When used in the Heavy Duty Dispenser, it provides four times as many clean-ups as "hand scoop" methods.

Pat. No. RE. 24312

The Go-Jo jobber serving your area will be happy to show you how to cut as much as 75% off your hand-cleaning expenditures.

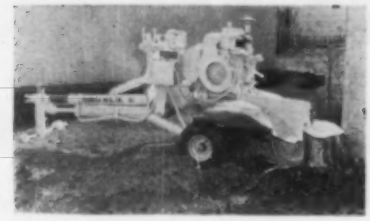
WRITE US TODAY.

GOJER, INC.

Box 991 Akron 9, Ohio

MANUFACTURERS OF go-jo PRODUCTS

Stump Cutter



Latest addition to the Stump Cutter line manufactured by VERMEER MFG. CO., PELLA, IA., is the Model 6, which has been designed specifically to fit the budgets of smaller municipalities.

Model 6 Pow-R-Stump Cutter removes stumps in hard-to-get-at places—and removes largest stumps to a depth of 6 inches below the surface of the ground. The remaining hole can be filled with dirt and chips. Cutting wheel on the Model 6 is mounted on an arm that moves hydraulically from side to side across the stump. Three hydraulic control levers operate the entire unit.

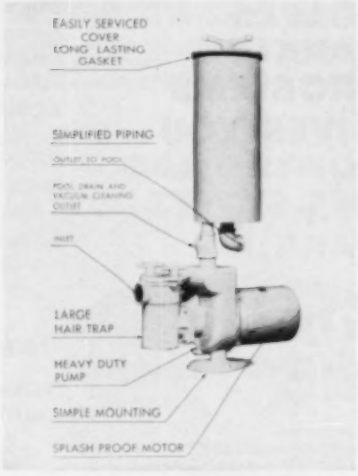
Propane-Fired Asphalt Roller

The new 600-pound "Hot Roll," Model MP26, makes rapid work of everything from utility cuts to large area overlays, producing compaction of asphalt in excess of a 5-ton tandem roller plus a smooth water-tight surface. Results are said to be equal on either hot or cold mix. The MP26 is also used in paving sidewalks and in patching municipal parking lots.

Power source is a 3½-hp engine; fingertip controls move the 26-inch wide unit forward and back with a handy clutch for stop and go. A standard 20-pound propane tank fires the burner system for 16 hours. The Hot Roll hooks onto a truck tail gate in a special rack for easy hauling.

For additional information, write ELLIS DISTRIBUTING CO., Box 168, LIBERTY, MO.

Swimming Pool Water Filter



The new Hilliard unit has a splash-proof motor, 35-gpm centrifugal pump, with an oversize hair and debris strainer on the inlet. A throwaway filter cartridge results in easy servicing. Used cartridges can be flushed off with a garden hose and used a number of times, reports THE HILLIARD CORP., ELMIRA, N. Y.

New, Big Production Crawler

Case's 750 crawler tractor features a 301 cubic inch Case-built diesel engine, Terramatic transmission, a "load-sensing" torque converter that produces up to 23,000 pounds push-pull effort, power shifting, power steering and independent power control of each track. The new hydraulic track adjustment enables faster, easier, daily maintenance plus top-operating efficiency and more profit

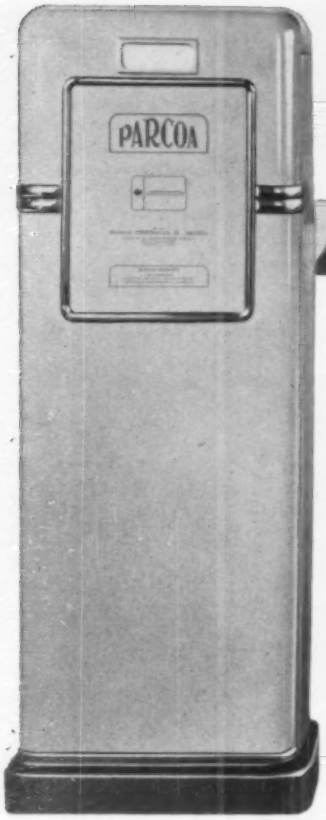
(Continued on page 215)

SWENSON the Summer-Winter Spreader...

U. S. Army Photograph

for resurfacing and ice control

Spread sand, gravel, salt, calcium chloride, cinders or any combination of these materials. Clutch-controlled from cab of truck. Any desired rate-of-flow. Steady or intermittent up to 30 M.P.H. Narrow strips or full traffic lanes. Forward or reverse. Models to fit any dump-truck box. Chain or hydraulic drive. Speed summer construction jobs, dust control, soil stabilization. Handle winter ice-control problems faster, safer, more efficiently. Write for complete information.



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SOLVES PARKING PROBLEMS GIVES YOU CONTROLLED OFF-STREET PARKING

PARCOA® Johnson SINCE 1909 Systems PRODUCT OF BOWSER RESEARCH

Every month, more and more cars are appearing on America's highways adding to congestion and confusion. Parcoa offers the perfect solution . . . positive parking control—day and night . . . smoothly, safely, without interruption or overcrowding. PARCOA is an automatically controlled completely integrated parking system—not just a gate. You are offered a choice of controls . . . coded card key, coin operation, ticket issuing system or a time-dated ticket dispenser.

PARCOA will pay for itself many times over. 100% collection and ease of maintenance are assured. Before deciding on **any** parking control system investigate **PARCOA!**

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DISTRICT FIELD OFFICES:
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CANADA: E. A. Horton Sales Ltd., 299 Bering Ave., Toronto 18, Ont.

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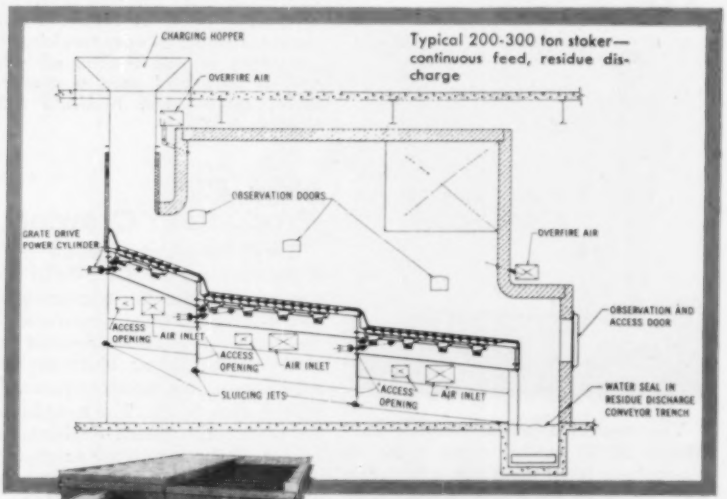
RECIPROCATING GRATE
INCINERATOR STOKER
FOR **MUNICIPAL** AND
INDUSTRIAL INCINERATORS

- **Alternate lateral rows of reciprocating grates convey the refuse mass through the firing chamber, tumbling and tearing it, to expose its maximum surface to flame, and without manual poking.**
- **High resistance air metering grates prevent bare spots and blow holes.**
- **Hydraulic drive, automatically controlled for selected frequency and length of grate-reciprocating strokes.**
- **Factory-assembled for shipment in modular units (single or multiple) for any size incinerator, assure a minimum of field erection labor.**
- **Full details and specifications in Bulletin 701. ASK for IT.**

Also Available—
Detroit Rocker Grate Incinerator Stoker



Typical 200-300 ton stoker—continuous feed, residue discharge

Two-unit stoker with drives and controls, being shop-assembled

DETROIT *SINCE 1898* **STOKERS**

DETROIT STOKER COMPANY
DIVISION OF UNITED INDUSTRIAL CORPORATION
MAIN OFFICE AND WORKS • MONROE, MICHIGAN
District Offices or Representatives in Principal Cities

(Continued from page 213)
time on the job. Specifications of the new tractor can be obtained from J. I. Case Co., Racine, Wis.

Built for Emergencies

This custom-built emergency truck on an International Model BC-152 chassis is in service of the Northbrook (Ill.) volunteer fire department. The special body on this 149-inch wheelbase unit contains a portable 8½-hp centrifugal water pump with a capacity of 18,000-gph, 110-volt generator, floodlights, power cable, inhalator, oxygen bottles, cutting torch, oxygen masks, public address system, dry chemical extinguishers, chain saw and tools, smoke ejector, electronic siren. Power source is a V-8, 226 cubic inch engine rated at 154 horsepower.

1½-Inch Self-Priming Pump

Development of a rugged, lightweight self-priming contractor pump has been announced by Essick Manufacturing Co., Los Angeles 21, Calif. Compact and easily transported from one job site to another, it allows conversion from general pumping to special application pumping with no castings to change. Priming operation is controlled by natural hydraulic action. Neither

(Continued on page 217)

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Municipal Supplies Catalog
SPECIFY YOUR TITLE ON YOUR REQUEST

W. S. DARLEY & CO.
CHICAGO 12

HERE'S HOW 800 CITIES SOLVED THEIR STUMP PROBLEM...

Original Low Cost Vermeer
POW-R-STUMP CUTTER
Rips Stumps To Shreds In Minutes!

You'll save hundreds of back-breaking man-hours and thousands of dollars annually . . . with a Vermeer Pow-R-Stump Cutter. The choice of tree experts everywhere! It's the modern way, the economical way to remove ugly stumps. A one-man operated unit. Removes stumps 10" below the ground. Write for complete information, low price and FREE demonstration.

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DEMCOR E-X-P-A-N-D-E-D METAL
LITTER BASKETS
Help keep your city CLEAN

★ Durable ★ Rigid ★ Weather Proof
★ Low-cost ★ Galvanized ★ Built to last
Write for complete description and prices

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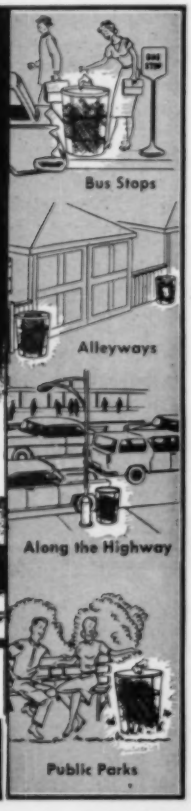

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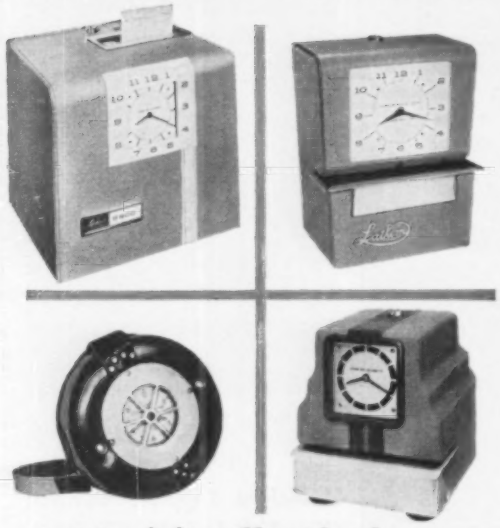

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WATCHMAN CLOCKS

You can eliminate time leaks and increase the efficiency of all departments with a Lathem machine. Precision-built for a long life of care-free service, Lathem machines are designed and engineered to meet all of your time recording needs with absolute accuracy and maximum speed.

There is a Lathem machine for (1) payrolls, (2) parking lots, (3) garages, (4) public buildings and watchmen's rounds, (5) dating and numbering papers, (6) mail arrival, (7) booking and releasing prisoners, (8) records of sequence handling, and (9) entry of important records and deeds as well as many other activities where an accurate time record is essential.

Write, wire or call for complete information.

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GENTLEMEN: Without obligation, please send me full information about Lathem time equipment, including prices.

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RIDING MOWERS CUT LAWN MAINTENANCE COSTS

Pennington Extra Heavy-Duty "Super 60"

- Smooth running 12.9 HP two cylinder Onan engine gives power to spare for toughest mowing jobs.
- Triple blade design—three 20" vacuum lift blades cut cleanly, smoothly—minimize windrowing.
- Extra large wheels and tires increase flotation and add to clearance of mower—mows rough, weedy areas with ease.
- Wide tread, low center of gravity and torque converter drive give amazing performance on steep hills and slopes.

All Pennington mowers offer these features:

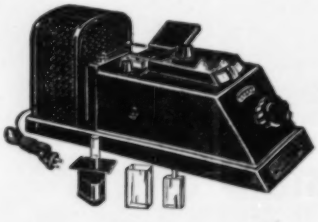
- Trim close to trees, buildings, etc. on either side.
- Ground speed independent to blade speed.
- Simple, easy-to-reach operating controls and comfortable seat reduce operator fatigue.
- Unmatched versatility. Attachments available include leaf and litter sweeper, outrigger mowers for terrace mowing, snow blade, leaf mulcher, pivot seat for slopes, etc.

Write for complete details. You'll get information, too, on the big 60" and compact 48" models powered with Heavy Duty Wisconsin engines.

PENNINGTON MANUFACTURING CO.
ADDISON, ILLINOIS

KLETT SUMMERSON
ELECTRIC PHOTOMETER

Adaptable for Use in Water Analysis



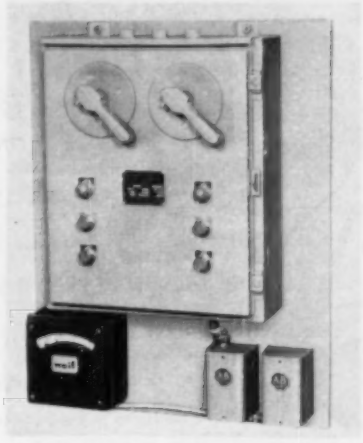
Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

KLETT MANUFACTURING CO.
179 East 87th Street, New York, N. Y.

(Continued from page 215)

valves nor priming ports are required to accomplish the priming cycle.

One-piece aluminum casings are used in the construction of these pumps to avoid leakage in internal joints or gaskets. The pumps are available on steel skid base or semi-pneumatic tires. For additional information, write ESSICK MANUFACTURING CO., 1950 SANTA FE AVE., LOS ANGELES 21, CALIF.



Pump Control, Liquid Level Indicator

The VIS-A-TROL automatic control system, recently announced by Weil Pump Co., Chicago 22, Ill., is designed for use with submersible sewage and sump pumps, vertical type sewage and sump pumps and septic tank effluent pumps.

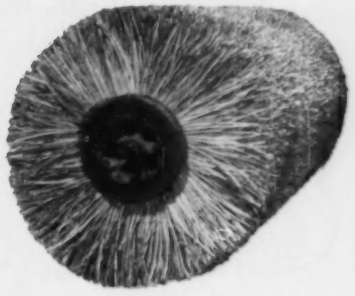
It is combined with a depth measuring device which shows the depth of liquid in the pit. Pumping rate can be compared with the in-flow without looking into the wet pit. It is indicated on the instrument and responds instantly to level changes in the sump.

VIS-A-TROL can be installed inside buildings as far as 300 feet away from the pumping pit or where conditions dictate can be installed in weather-proof enclosures on the outside.

There are no electrical control

(Continued on page 219)

FIBRES



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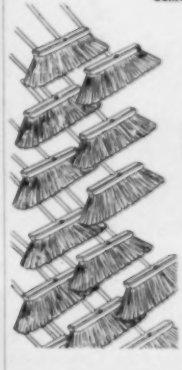

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We supply the right street push broom for every job . . . at the right price . . . in all popular fibres including Calabar Bass, Bassine, Palmyra Stalks and Flonene Plastic.

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GOLDAK TRANSISTORIZED LOCATORS

Pipe Locator-Leak Detector
"Dualtronic"
Model LC-5T

The new "Dualtronic" combines the finest transistorized Pipe Locator ever developed with a high-gain Leak Detector to produce an effective and useful multi-purpose instrument. Designed specifically for Municipalities and Water Companies, the LC-5T assures pin-point detection of pipes, cables, mains and laterals and becomes a sensitive detector for water leaks simply by plugging in a crystal, rubber-encased microphone. Additionally, by a simple manipulation the new "Dualtronic" will pin-point valves, risers, boxes, and manhole covers. Now with transistors the versatile LC-5T is lighter, more sensitive, easier to operate, and it requires only flashlight batteries . . . Write today for further details on the "Dualtronic" and other Utility detection instruments.

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WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS SINCE 1933

TAKE THE "PRESSURE" OFF YOUR AIR COMPRESSOR PROBLEMS . . .

Take "Hardrock Smitty's" advice and ***GO SMITH!***

The Smith 125 Air Compressor delivers over 125 cfm day in and day out. Rugged construction, smooth performance built into the Smith 125 means efficient, economical operation.

The Smith 125 has the most wanted features:

- low initial cost
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- 125 cfm at 1165 RPM
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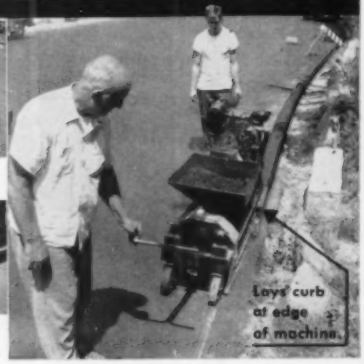
SMITH
AIR COMPRESSORS

GORDON SMITH & COMPANY, INC., Bowling Green, Ky.

NEW ETNYRE AUTOMATIC CURB-PAVER

Short-radius curves or long, straight curbing.

Smooth "ironed" surface is permanent, weather-proof.

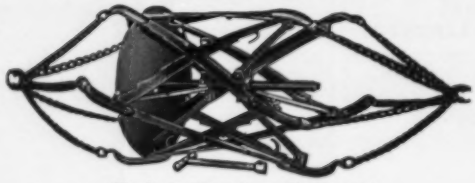


Lay beautiful weatherproof bituminous curbs at speeds of four to six ft per minute without curbing forms! The new self-propelled Etnyre Heavy-Duty Automatic Curb-Paver lays, compacts, and finishes straight or curved bituminous curbs in one fast, easy trip. Compaction is over 90 per cent, equal to that of a 12- to 15-ton roll!

If you lay curbs for streets, roads, traffic islands, or parking areas, learn the full details of how the Etnyre Automatic Curb-Paver saves money, time, and trouble! Phone your nearby Etnyre dealer, or write.

E. D. ETNYRE & CO., Oregon, Illinois

EXPANDING ROOT CUTTER SEWER CLEANER



Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit sewer from 8 to 30 inches.

Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Open and in action removing roots and cake sediment like this.

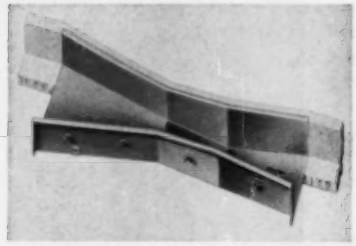
Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY
108 East Walnut St. **Nappanee, Ind.**

(Continued from page 217)

connections between the wet pit and the control panel. The panel and instrument is a factory-wired unit. Each unit is manufactured to requirements of the particular job. For additional information, write WEIL PUMP CO., 1530 N. FREMONT, CHICAGO 22, ILL.

Plastic Parshall Flume Liner



The new, one-piece precision-molded plastic Parshall Flume Liner added to the Differential Producer line by B-I-F Industries, is constructed of polyester resin reinforced with fibreglass. It is available in sizes from 3 inches (10 gpm) to 8 feet (210,000 gpm).

Its lightweight makes installation easy, and it has no seams requiring special cements or sealing compounds. It will tolerate a high degree of submergence and handles fluids containing settleable solids with no deterioration, being corrosion-proof. Head loss is reported to be low, making the Liner well suited for liquids flowing in open channels under gravity. For additional information, write B-I-F INDUSTRIES, INC., P. O. Box 276, PROVIDENCE 1, R. I.

Purchasing News Briefs

● **General Electric** will spend more than $1 million in 1961 enlarging its **Communication Products Department** headquarters at Lynchburg, Va., which houses the firm's two-way radio, microwave-multiplex and power line carrier current businesses as well as some military communications lines. Over 100,000

(Continued on page 221)

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Midwest
TAK-A-PART PICNIC TABLES

WALK-THRU DESIGN No braces or frames to step over.

SLIDE-EASY, SKID-TYPE FEET . . . Protect turf from damage when moved.

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- **AUTOMOTIVE-TYPE FINISH** of high baked green enamel.
- **RIGID, STURDY, NON-TIPPING** . . . 1½" heavy welded steel tubing.
- **SUPPORT ANY LENGTH TABLE** . . . Use 2 frames for tables up to 10 ft.; third frame for longer tables.
- **BUY METAL PARTS ONLY** and use your own lumber.
- **OR BUY TABLES COMPLETE** with lumber precut and precision drilled.

Exclusive **KIDDIE TABLE**

Same walk-in design and skid-type feet. A delight for little tots.

- **COMBINATION BENCH 'N TABLE** Converts quickly from 6' bench to 6' table with attached bench.
- **STURDY 4-FT. BENCH** Counter balanced frame of 1⅜" welded steel tubing.

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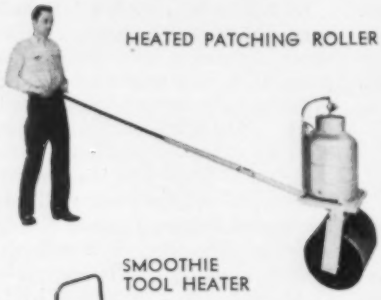
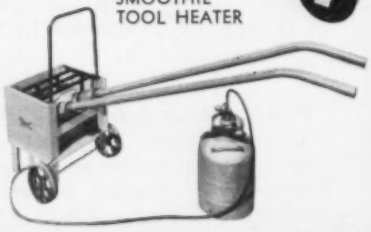
AEROIL EQUIPMENT HANDLES SPRING PATCHING FASTER, EASIER, AT LEAST COST!

Stretch your road maintenance dollars this year with Aeroil asphalt patching equipment. Whatever your size, your requirements or your budget, you'll find the efficient, cost-cutting road maintenance tools you need at your local Aeroil dealer . . . and you'll find him nearby —ready with fast service on the complete line of Aeroil municipal equipment.

Write for a complete brochure on Aeroil municipal equipment





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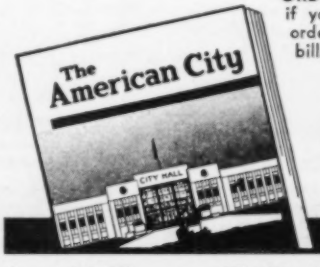

The American City
470 PARK AVE. SOUTH
NEW YORK 16, N. Y.

a *Buttenheim* publication

Purchasing

(Continued from page 219)

square feet will be added to factory, laboratory, office, cafeteria and service areas. A major portion will be used to increase manufacturing productivity. The company is projecting a higher volume of communication sales in 1961 than 1960 and anticipates that more two-way radio units will be sold in the next 12 months than in any previous year in the history of mobile communications.

• Krayloy Plastic Pipe Co., manufacturers of plastic pipe, conduit and fittings, and Chemtrol, manufacturer of plastic valves and pumps, have combined to form **Krayloy-Chemtrol Company.** The new organization will remain a subsidiary of Rexall Drug and Chemical Co., 402 W. Central, P. O. Box 1950, Santa Ana, Calif.

• **FWD Corporation,** Clintonville, Wis., reports acquisition of Wagner Tractor, Inc., now to be known as FWD Wagner, Inc. The new, wholly-owned subsidiary of FWD will continue to operate in Portland, Ore. with its own management and plant. Officers of FWD Wagner are Maurice E. Ash, president (also FWD Corp. president); J. Burke Long, vice president-operations; Roy A. Weber, secretary-controller; Ken Johnson, sales manager.

Taking part in the dedication of a new battery of United Metal waste receptacles (Model 150) which will service the downtown Wilmington, Del. business and shopping districts are: Lee R. Kleinbard of Atlee Products Co., which sold the receptacles to Wilmington; Robert A. Mitchell, City Engineer; Larry Barber, local representative of United Metal Receptacle Corp., and Chesley J. Smith, executive director of the Wilmington Business Men's Civic Association, which shared the cost of the project with the city.

ARPS MODEL L-12 Trench Devil CHALLENGES ALL COMPARISON!

• DIGS WIDER - DEEPER - FASTER THAN ANY KNOWN COMPETITION

• COSTS LESS TO BUY - OPERATE - MAINTAIN

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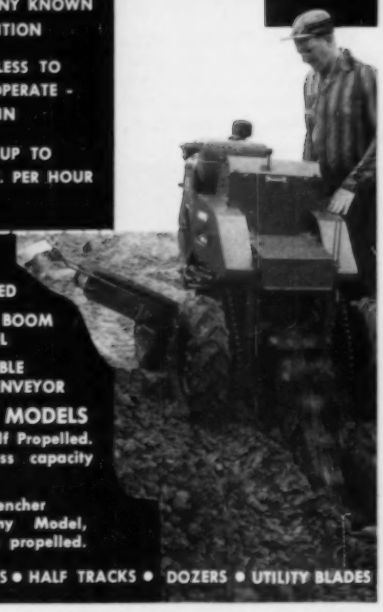

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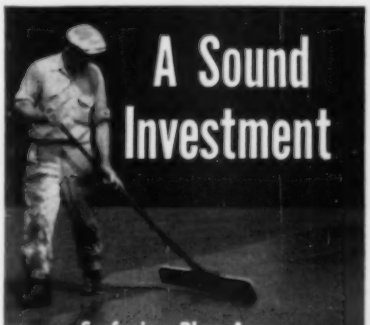

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ABOUT PEOPLE

I. M. Glace, Jr., president, and Harry C. Herbert, senior vice president of **Glace & Glace, Inc.,** Consulting Engineers, Harrisburg, Pa., announce the election of John O. Fulmer, Jr., P. E., and John F. Strangarity, Jr., as vice presidents of the firm.

Martin **B. Paulsen,** formerly on the engineering staff of American Water Works Service Co., Philadelphia, is now utility systems engineer with **B-I-F Industries, Inc.,** Providence, R. I.

M. C. Bordner

E. C. O'Hare

Promotions for four executives have been announced by **Champion Corporation** of Hammond, Ind., makers of OK Champion municipal sewer cleaning equipment. Edward C. O'Hare, formerly vice president of sales, has been named president and elected to the Board. Fred Schneider, factory superintendent, is now vice president in charge of manufacturing. C. W. Johnson, vice president and treasurer, has also been named secretary and has been elected to the Board. M. C. Bordner, assistant sales manager, has been promoted to sales manager.

Oliver Corporation, Chicago 6, Ill., has re-established and strengthened its construction equipment sales organization as a separate Industrial Division and has named S. F. (Pete) Beatty manager of the division, according to an announcement by Samuel W. White, Jr., Oliver president.

Pete Beatty

W. Benjamin Flanigin, vice president-sales of **The Gamewell Co.,** Newton Upper Falls, Mass., manufacturer of municipal and industrial fire alarm systems, police systems and precision potentiometers, has announced the assignment of John E. O'Malley as sales engineer in the upstate New York area, with offices in Geneva, N. Y.

John O'Malley

Ross J. Burns, formerly general sales manager of the water meter division, **Badger Meter Mfg. Co.,** Milwaukee, Wis., was elected vice president in charge of municipal sales at a recent meeting of the board of directors of the company. The announcement was made by President J. O. Wright.

Ross Burns

John W. Chandler has been named assistant manager, diesel sales, according to an announcement by H. E. Hanson, vice president and general manager of the **Beloit Division of Fairbanks, Morse & Co.**

Frederick J. Zimmerman has been elected vice president-plants and engineering of **Sterling Drug Inc.** He will continue to head two Sterling Divisions—the Salvo Division, Wausau, Wis. and the Zimpro Division, which handles all matters related to the Zimmerman Process for the disposal of organic wastes of which Mr. Zimmerman is the inventor.

Charles Comstock

George Lambeth

Charles M. Comstock, advertising manager of **Dorr-Oliver Incorporated,** Stamford, Conn., has been named manager of the company's newly-formed CompleTreator Sales Division. As such, he will be responsible for developing a network of distributors to market and service D-O CompleTreator sewage treatment systems and DorrClone water desanding systems. George F. Lambeth, sales specialist, has been named to succeed Mr. Comstock as advertising manager, with the new title of advertising and publicity manager.

Raymond F. Beckwith, formerly assistant advertising manager of **Recordak Corp.,** New York 17, N. Y., subsidiary of Eastman Kodak Co., has been advanced to advertising manager, succeeding O. H. Perry Cabot.

Lindell D. Hale, formerly district airport engineer for the Federal Aviation Agency in Michigan and Indiana has joined the midwestern consulting firm of **Clyde E. Williams & Associates, Inc.,** Indianapolis 5, Ind., according to an announcement from Clyde E. Williams, founder and president.

Appointment of Roy M. Casper as general manager, Power Equipment Division has been announced by **Allis-Chalmers Mfg. Co.,** Milwaukee 1, Wis. A vice president of the company and general manager of the Atomic Energy Division since 1957, Casper succeeds J. W. McMullen, retired.

The appointment of Arthur G. Weiner as San Francisco district representative of the **Superior Metalware Division, John Wood Company,** St. Paul, Minn., was announced by C. P. Carlson, general sales manager. Mr. Weiner's new sales area comprises northern California, Oregon, Washington, Idaho, Montana, Utah, and Nevada.

Arthur Weiner

Ralph L. Boyer, vice president and director of engineering of **The Cooper-Bessemer Corporation,** Mount Vernon, Ohio, has been elevated to the position of vice president of advanced planning for the corporation, according to E. L. Miller, president and general manager.

Ralph Boyer

In two recent sales department appointments at **Bucyrus-Erie Co.,** South Milwaukee, Wis., Howard Freyensee was named to the newly created position of General Products sales manager and Robert P. Brooks succeeded him as Large Machine sales manager.

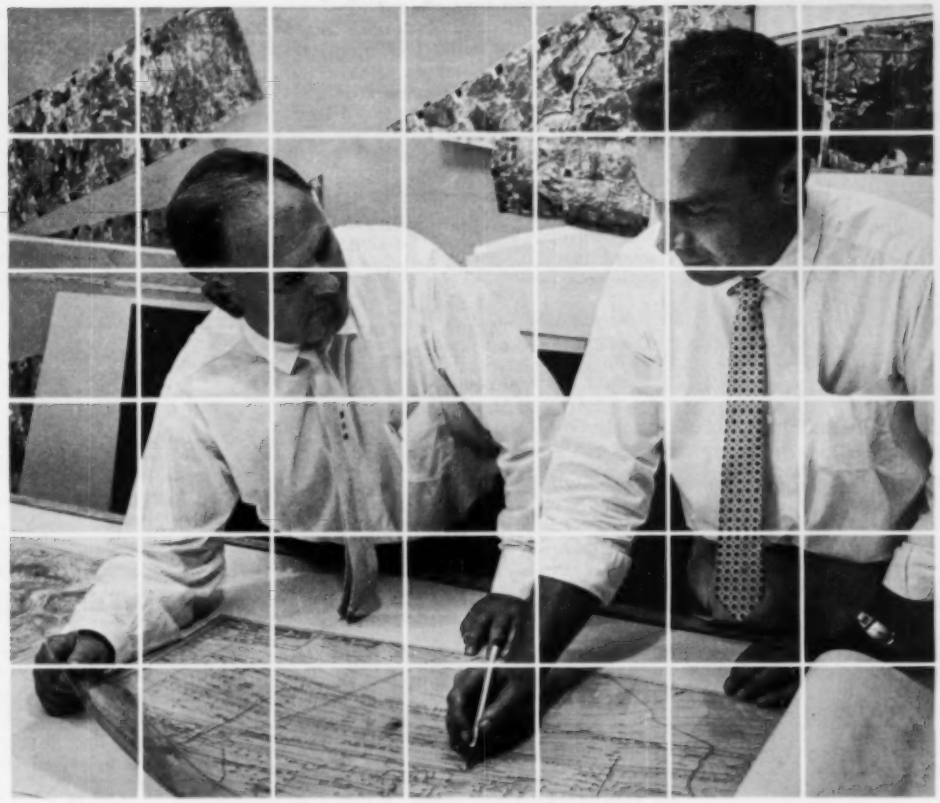
The appointment of Harold C. Clark, as Chicago branch manager has been announced by Gil M. Wayne, executive vice president of **Wayne Manufacturing Co.,** California producer of street and power sweepers for municipal, commercial, industrial and military use. Clark replaces Ken L. Harvey who has been transferred to company headquarters in Pomona, Calif.

Harold Clark

Burns & McDonnell Engineering Co., Consulting Engineers, Kansas City 41, Mo., have announced the admission of the following former staff members to partnership in the firm: Leo L. Cunningham, civil engineer; Jasper W. Meals,

(Continued on page 224)

Mr. Sandbeck (left) and Rex Judkins, LKB engineer, inspect finished roadway plan on CRONAFLEX



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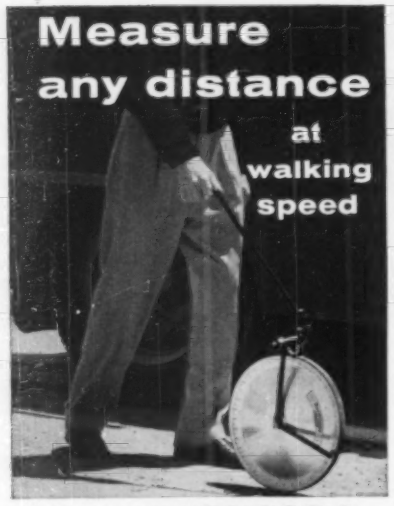

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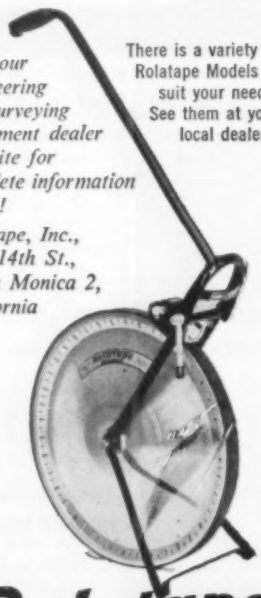

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About People

(Continued from page 222)

civil engineer; Alwin H. Rector, electrical engineer; William W. Rumans, electrical engineer; Edwin J. Runyan, civil engineer. Continuing as members of the firm are Robert H. McDonnell, Arthur F. Hartung, Russell G. Kincaid, Hartwell J. Rosson, and Earl J. Thomson.

W. H. Cochrane, president of **Neptune Meter Co.**, New York 20, N. Y., has announced that Edgar A. Gaudette has joined the company as assistant to the president.

At a recent meeting held in Homer City, Pa., the board of directors of the **Syntron Company** elected William V. Spurlin vice president and chief engineer for the company. Mr. Spurlin fills the vacancy created by the retirement of E. J. Missien, who was vice president in charge of engineering.

William Spurlin

Vermeer Manufacturing Co. of Pella, Ia., manufacturers of irrigation, ditch-digging and stump removal equipment, has announced the recent appointment of Carl E. Boat as sales manager for all sales divisions. He succeeds Bill Willinger, resigned. Mr. Boat has been connected with the sales department of Vermeer since 1950.

Carl Boat

Henry Pratt Co., Chicago 7, Ill., has appointed Abdon J. Brazaitis and Clarence L. Carlson to the post of sales planner. Mr. Brazaitis will be responsible for rubber and metal seated butterfly valves and expansion joints; Mr. Carlson, for rubber seated ball valves and automatic strainers.

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Unloading scene as IOWA hydrants are delivered by the carload to San Jose Water Works.

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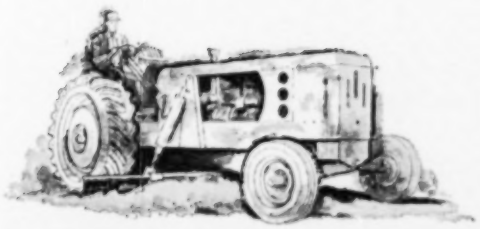

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Street repair . . .

Among the many assignments given the 1¼ yd Michigans has been breaking out and truck-loading of old concrete pavement. Because previous loaders lacked Michigan's powerful pry-out, this job formerly required drills, air compressors, sledgehammers and many man-hours. Now, Michigans do *all* the work, reducing costs per average job 50%, man-hours 50%.

Refuse disposal . . .

Landfill dozing once required a crawler plus a lowboy for transportation. Today, Michigan with its fast, self-powered travel (up to 28 mph) and fast dozing, has halved the time spent handling daily coverage. Unit drives over city streets to the dump . . . quickly levels, compacts and covers refuse . . . then drives on to other assignments.

Loading decomposed granite . . .

Another major job for the Michigans is to excavate and truck-load pit-run material for street repair. Tight rock structure made excavation almost impossible with previously-owned tractor shovels. Michigan's rugged construction and powerful pry-out, however, successfully gouge out 1¼ yard bucketfulls of the decomposed granite (note photo). Typical 5 yard truck-loads take only 2 minutes.

Cleaning storm drains . . .

Mucking out storm drains was another job formerly reserved for a crawler dozer (or motor grader) and a front-end loader. Today, one Michigan does both tasks—dozing and truck-loading the waste material at a saving of over 50% in time and machine cost.

Operation costs only $2.02 hourly

Overall operating costs of both the 3-year-old and the newer 1½-year-old Michigans are surprisingly low. Fuel, oil, tires, maintenance, repairs—all costs, in fact, except depreciation and operators' wages (which are figured under a separate budget)—add up to only $2.02 per machine per meter hour!

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